Decathlon Series Gas Fryers

Service & Parts Manual

D20, D50, D60 & D80 Series

NON-CE &

DEAN

CE

CFESA
Commercial Food Equipment Service Association

Dean, a member of the Commercial Food Equipment Service Association, recommends using CFESA Certified Technicians.

24-Hour Service Hotline 1-800-551-8633

Price: $15.00

819-5922
SEPTEMBER 2002

Please read all sections of this manual and retain for future reference.

This product has been certified as commercial cooking equipment and MUST be installed by professional personnel as specified. Installation, maintenance and repairs should be performed by your FRYMASTER FACTORY AUTHORIZED SERVICE CENTER.

⚠ DANGER

Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other cooking appliance.

⚠ DANGER

Instructions explaining procedures to be followed MUST be posted in a prominent location in the event the operator detects a gas leak. This information can be obtained from the local gas company or gas supplier.

⚠ WARNING

Improper installation, adjustment, alteration, service or maintenance can cause property damage, injury or death. Read the installation, operating and maintenance instructions thoroughly before installing or servicing this equipment.

⚠ DANGER

Safe and satisfactory operation of your equipment depends on proper installation. Installation MUST conform with local codes, or in absence of local codes, with the National Fuel Gas Code, ANSI Z223.1; The Natural Gas Installation Code, CAN/CGA-B149.1; The Propane Installation Code, CAN/CGA-B149.2; or The latest edition of the National Electric Code, N.F.P.A. 70.

NOTICE

If, during the warranty period, the customer uses a part for this Enodis equipment other than an unmodified new or recycled part purchased directly from Frymaster/Dean, or any of its authorized service centers, and/or the part being used is modified from its original configuration, this warranty will be void. Further, Frymaster/Dean and its affiliates will not be liable for any claims, damages or expenses incurred by the customer which arise directly or indirectly, in whole or in part, due to the installation of any modified part and/or part received from an unauthorized service center.

⚠ DANGER

The crumb tray in fryers equipped with a filter system must be emptied into a fireproof container at the end of frying operations each day. Some food particles can spontaneously combust if left soaking in certain shortening material. Additional information can be obtained in the filtration manual included with the system.

⚠ DANGER

The front ledge of the fryer is not a step. Do not stand on the fryer. Serious injury can result from slips or contact with the hot oil.

⚠ WARNING

Drawings and photos used in this manual are intended to illustrate operational, cleaning and technical procedures and may not conform to on-site management operational procedures.

⚠ WARNING

No structural material on the fryer should be altered or removed to accommodate placement of the fryer under a hood. Questions? Call the Frymaster/Dean Service Hotline at 1-800-551-8633.

This equipment is to be installed in compliance with the basic plumbing code of The Building Officials and Code Administrators International, Inc. (BOCA) and the Food Service Sanitation Manual of the Food and Drug Administration.

COMPUTERS

FCC

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: 1) This device may not cause harmful interference, and 2) This device must accept any interference received, including interference that may cause undesired operation. While this device is a verified Class A device, it has been shown to meet the Class B limits.

CANADA

This digital apparatus does not exceed the Class A or B limits for radio noise emissions as set out by the ICES-003 standard of the Canadian Department of Communications.

Cet appareil numerique n'emet pas de bruits radioelectriques depassany les limites de classe A et B prescrites dans la norme NMB-003 edictee par le Ministre des Communcations du Canada.

⚠ DANGER

THIS PRODUCT CONTAINS CHEMICALS KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER AND/OR BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM.

Operation, installation, and servicing of this product could expose you to airborne particles of glasswool or ceramic fibers, crystalline silica, and/or carbon monoxide. Inhalation of airborne particles of glasswool or ceramic fibers is known to the State of California to cause cancer. Inhalation of carbon monoxide is known to the State of California to cause birth defects or other reproductive harm.

⚠ WARNING

Do not bang fry baskets or other utensils on the fryer's joiner strip. The strip is present to seal the joint between the fry vessels. Banging fry baskets on the strip to dislodge shortening will distort the strip, adversely affecting its fit. It is designed for a tight fit and should only be removed for cleaning.

DEAN

Decathlon Series Gas Fryers

Service & Parts Manual

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DECATHLON SERIES GAS FRYERS
CHAPTER 1: SERVICE PROCEDURES

1.1 Functional Description

Decathlon Series gas fryers contain a welded steel frypot (stainless or cold-rolled) that is heated by gas flames diffused evenly through tubes built into the frypot.

Flames originate from orifices in a burner manifold positioned beneath cast-iron burners. The burners are positioned in the tube openings, at the front of the frypot. The diameter of the orifices differs for natural (CE:G20/G25) and LP (CE:G31) gas as indicated in the accompanying table.

NON-CE (Altitudes of 2000 feet or less)

MODEL	INPUT (BTU)	GAS TYPE	ORIFICE MM (INCH)	ORIFICE PART NO.	QTY	EQUIPMENT PRESSURE	
						MBAR	INCH W.C.
D20G	50	NAT LP	2.18(#44) 1.40(#54)	810-2050 810-2324	2 2	10 27.5	4 11
D50G	85	NAT LP	2.08(#45) 1.32(#55)	14-0067-45 810-2441	4 4	10 27.5	4 11
D50G(HP)	120	NAT LP	2.53(#39) 1.51(#53)	810-2048 810-2059	4 4	10 27.5	4 11
D50GDDHP	115	NAT LP	2.44(#41) 1.51(#53)	14-0067-41 810-2059	4 4	10 27.5	4 11
D60G	112	NAT LP	2.08(#45) 1.32(#55)	14-0067-45 810-2441	5 5	10 27.5	4 11
D60G(HP)	150	NAT LP	2.53(#39) 1.51(#53)	810-2048 810-2059	5 5	10 27.5	4 11
D80G	122	NAT LP	2.26(#43) 1.40(#54)	810-2049 810-2324	5 5	10 27.5	4 11
D80G(HP)	165	NAT LP	2.58(#38) 1.61(#52)	810-2062 810-2063	5 5	10 27.5	4 11

CE ONLY (Altitudes of 2000 feet or less)

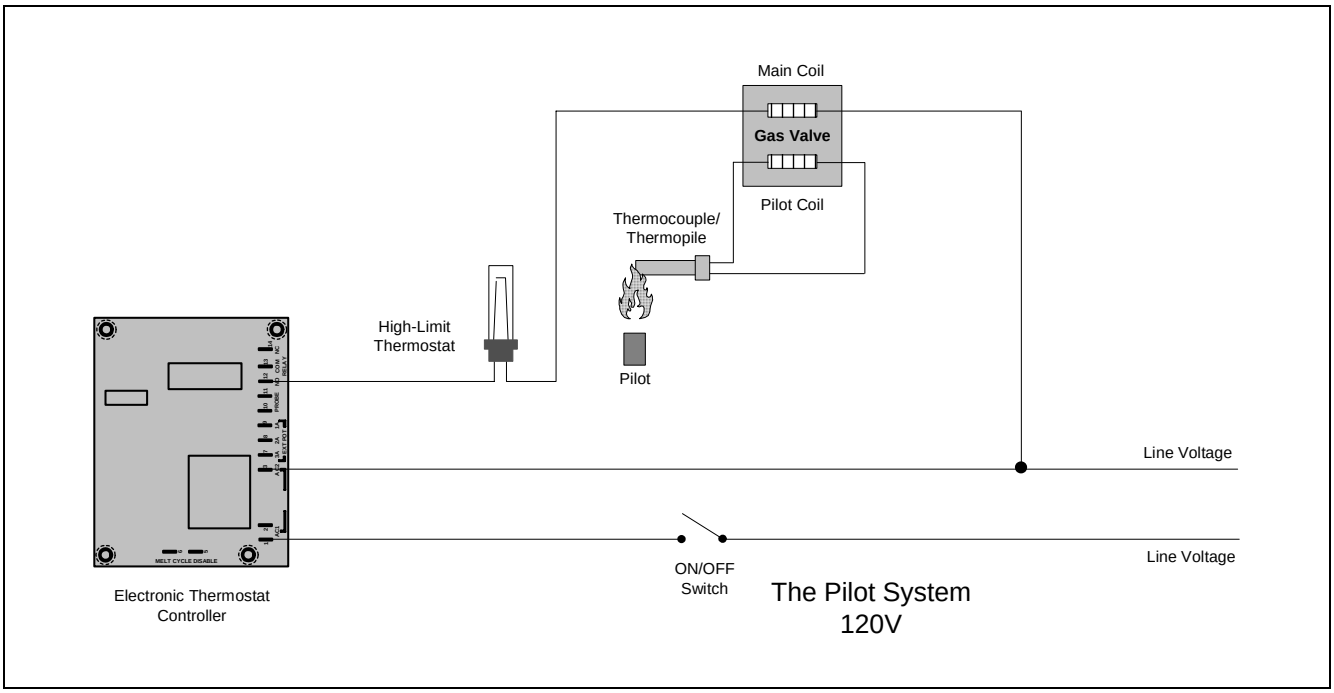
MODEL	INPUT (kW)	GAS TYPE	ORIFICE MM (INCH)	ORIFICE PART NO.	QTY/ COLOR	EQUIPMENT PRESSURE	
						MBAR	INCH W.C.
D20G	15,0	G20 G25 G31	2,40 2,40 1,51	810-2060 810-2060 810-2059	2/BLUE 2/BLUE 2/RED	10,0 15,0 27,0	4,0 6,0 10,8
D50G	30,0	G20 G25 G31	2,40 2,40 1,51	810-2060 810-2060 810-2059	4/BLUE 4/BLUE 4/RED	10,0 15,0 27,0	4,0 6,0 10,8
D60G	37,5	G20 G25 G31	2,40 2,40 1,51	810-2060 810-2060 810-2059	5/BLUE 5/BLUE 5/RED	10,0 15,0 27,0	4,0 6,0 10,8
D80G	37,5	G20 G25 G31	2,40 2,40 1,51	810-2060 810-2060 810-2059	5/BLUE 5/BLUE 5/RED	10,0 15,0 27,0	4,0 6,0 10,8

1.1 Functional Description (cont.)

An electromechanical gas valve regulates gas flow to the manifold. Decathlon Series gas fryers are equipped with either a 120-volt valve system or a 24-volt valve system. Units may be configured with either a pilot ignition system (standing pilot) or an electronic ignition system.

Pilot System Configuration

The pilot system is comprised of the pilot orifice, pilot hood, and a thermopile. The pilot serves two purposes. The first is to light the burner, the second is to heat the thermocouple (some systems incorporate a thermopile). In operation, the thermocouple is in contact with the pilot flame and generates millivolts. The millivolt output energizes the gas valve pilot coil, which in turn opens the pilot valve. If the pilot flame is extinguished, voltage is lost to the gas valve pilot coil and the pilot valve closes. The gas valve is constructed so that the main valve will not open if the pilot valve is not open. The pilot flame must be manually lit when the fryer is first placed into operation. A separate 120-volt circuit, activated by the fryer ON/OFF switch, provides voltage through the electronic thermostat controller to the gas valve main coil, which opens the main valve.



Electronic Ignition Configuration

In units configured for electronic ignition, an ignition module connected to an ignitor assembly replaces the pilot system. The ignition module performs three important functions: it provides an ignition spark, supplies voltage to the gas valve, and proofs the pilot flame.

The module contains a 60-second time delay circuit and a coil that activates the gas valve. The ignitor assembly consists of a spark plug, a pilot, and a flame sensor element.

Electronic Ignition Configuration (cont.)

At start-up the ON/OFF switch is placed in the "ON" position, supplying 12 VDC to the heat control circuitry in the controller or computer and to one side of the heat relay coil on the interface board. If resistance in the temperature probe indicates the temperature in the frypot is below 180°F (82°C), the current flows through a melt cycle circuit where a timer switch alternately closes for 3 seconds and opens for 24 seconds. If the temperature is 180°F (82°C) or above, the current flows through a heat circuit, bypassing the timer switch. In either case, current is supplied to the other leg of the heat relay coil which then closes an electronic switch in the 24 VAC circuit to provide current to the ignition module.

Circuitry in the ignition module sends 24 VAC current to the gas valve via a normally closed high-limit switch and a drain safety switch. Simultaneously, the module causes the ignitor to spark for up to 60 seconds to light the pilot flame. A flame sensor verifies that the pilot is lit by measuring the flow of microamps through the flame. If the pilot does not light (or is extinguished), current to the ignition module is interrupted, preventing the main valve from opening, and the ignition module "locks out" until the power switch is turned "OFF", then back "ON".

A temperature probe monitors the temperature in the frypot. When the programmed setpoint temperature is reached, resistance in the probe causes the heat cycle circuitry in the controller to interrupt current flow through the heat relay. This in turn interrupts the 24 VAC current to the ignition module, resulting in closure of the gas valve.

Control Options

Decathlon Series gas fryers may be equipped with operating thermostat controls (optional backup-only; available with electronic thermostat or computer), electronic thermostat controller, or Compu-Fry computers.

In fryers equipped with electronic thermostat controllers, the fryer is turned on and off by means of a rocker switch and the temperature is set by adjusting a potentiometer. An interface board is located in the component box (shield) behind the control panel (Compu-Fry equipped), or in a component box inside the cabinet (electronic thermostat controller-equipped).

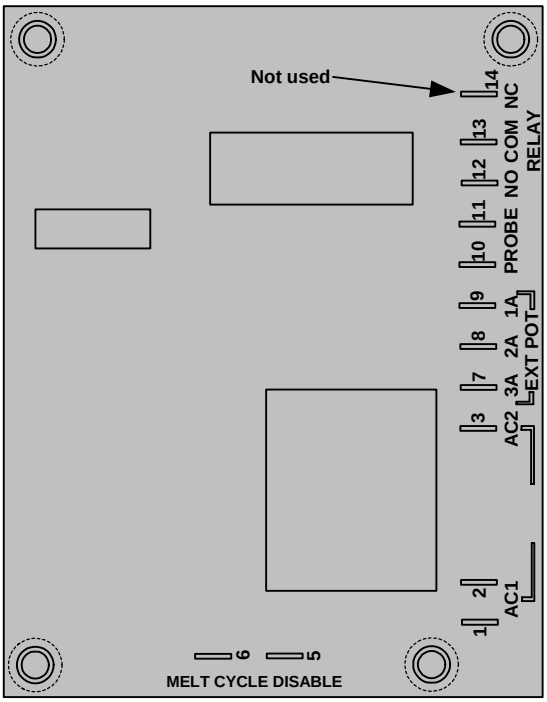
Interface Boards

The interface board provides a link between the controller/computer and the fryer’s individual components without requiring excessive wiring, and allows the controller to execute commands from one central point. Two types of interface boards may be used in Decathlon Series gas fryers; the type used depends on the fryer configuration.

In units configured for electronic thermostat controllers, P/N 807-3566 (115V) or P/N 807-3722 (208/230V) is used; in units configured for Compu-Fry computers, P/N 806-4549 is used.

Interface Boards (cont.)

IFB 807-3566 (115V) & IFB 807-3722 (208/230V): These interface boards are used in electronic thermostat controller-equipped Decathlon fryers.

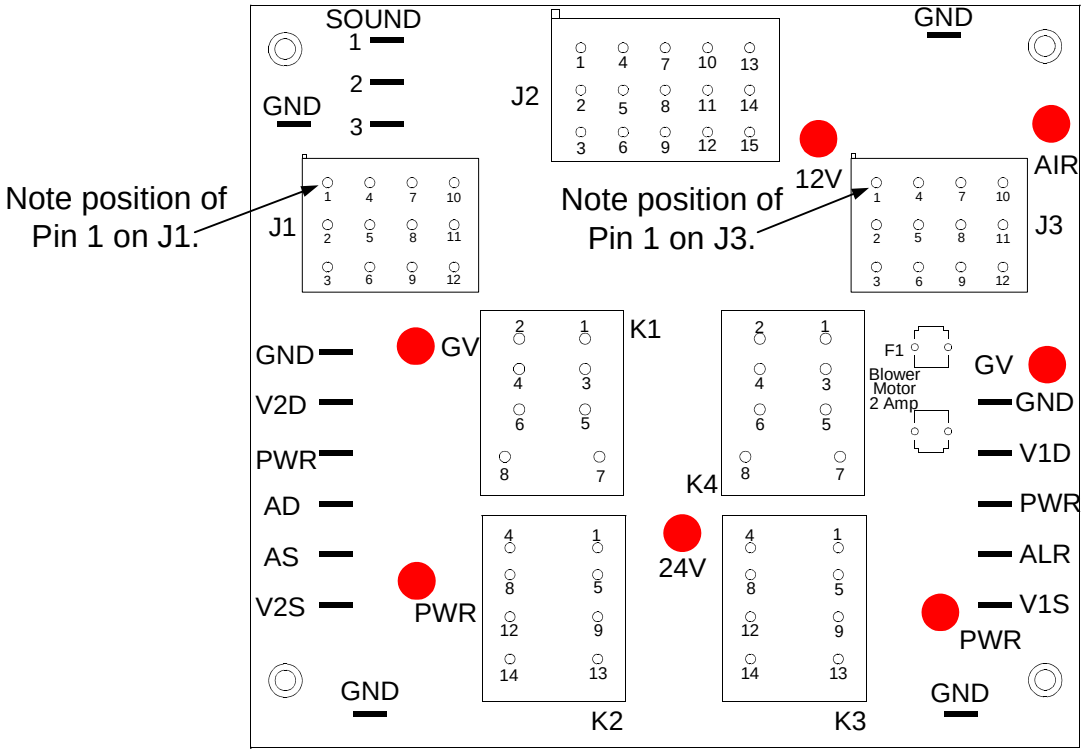


INTERFACE BOARD P/N 807-3566 & 807-3722

Line voltage enters the interface board at terminals 1 and 3. The temperature controls (potentiometer) are connected to terminals 7, 8 and 9. The sensor probe circuit is connected to terminals 10 and 11. The high-limit and gas valve routes through terminal 12. Terminals 2 and 13 are jumped out. Terminals 5 and 6 are the melt-cycle disable circuit. The melt cycle is enabled unless terminals 5 and 6 are jumped out.

Interface Boards (cont.)

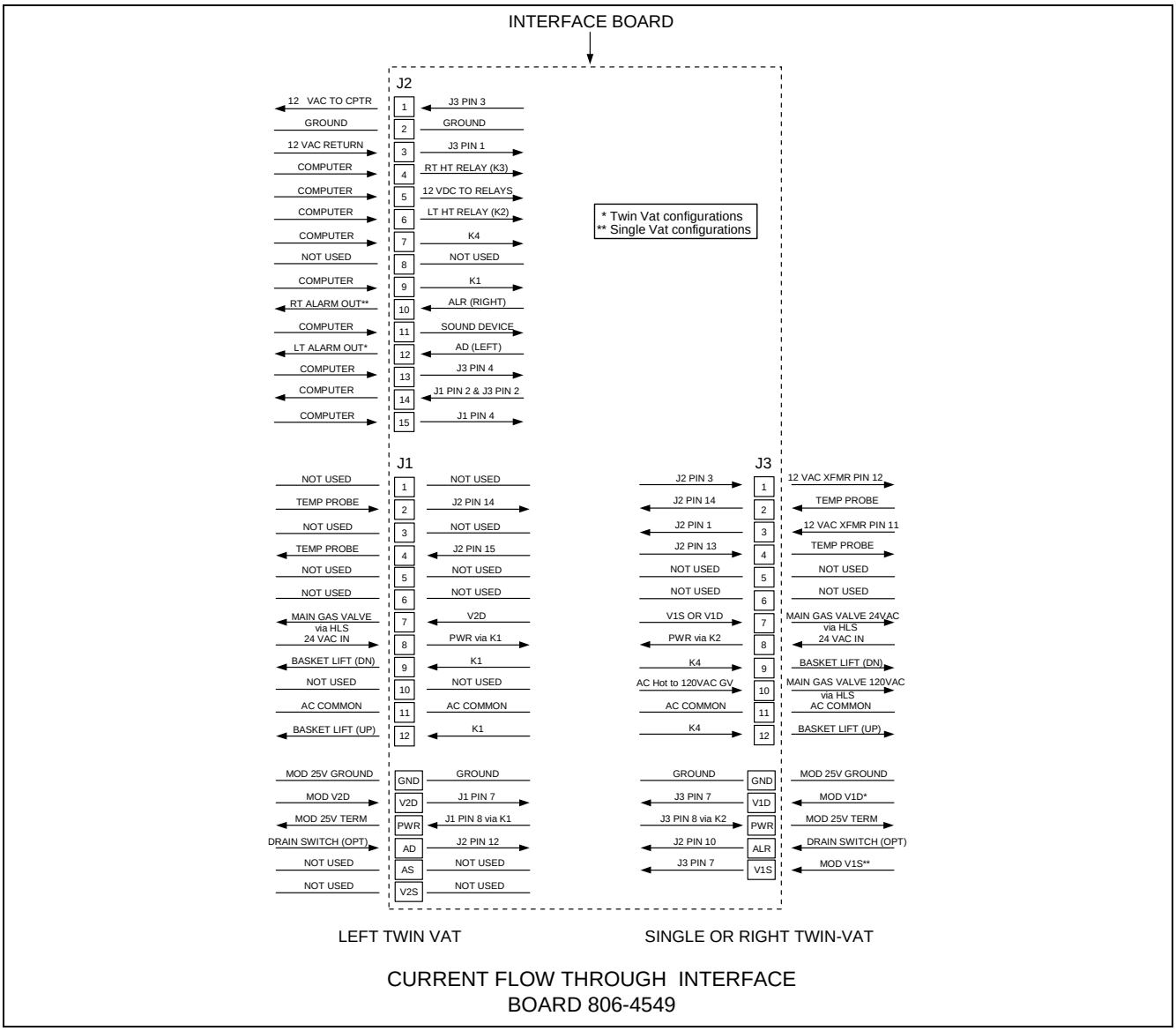
IFB 806-4549. This interface board is used in computer-equipped Decathlon fryers.



INTERFACE BOARD P/N 806-4549

FREQUENTLY USED TEST POINTS FOR INTERFACE BOARD P/N 806-4549			
Test	**Meter Setting**	**Pins**	**Test Results**
12VAC Power to Controller	50VAC Scale	1 and 3 on J3	12-18
24VAC Power to Right Module	50VAC Scale	8 on J3 and GROUND	22-28
24VAC Power to Left Module	50VAC Scale	8 on J1 and GROUND	22-28
12VDC Power to Right BL Relay	50VDC Scale	7 on J2 and 9 or 12 on J3	12-18
12VDC Power to Left BL Relay	50VDC Scale	9 on J2 and 9 or 12 on J1	12-18
24VAC Power to Right High-Limit	50VAC Scale	7 on J3 and GROUND	22-28
24VAC Power to Left High-Limit	50VAC Scale	7 on J1 and GROUND	22-28
120VAC Power*	250VAC Scale	11 on J3 and GROUND	110-125
120VAC Power To 120VAC Gas Valve*	250VAC Scale	10 on J3 and GROUND	110-125
Probe Resistance (Right)**	R x 1000 Ohms	2 on J3 and 4 on J3	***
Probe Resistance (Left)**	R x 1000 Ohms	2 on J1 and 4 on J1	***
*** Where Applicable**			
**** Disconnect 15-pin harness from controller before testing probe circuit.**			
***** See Probe Resistance Charts in this chapter.**			

Interface Boards (cont.)



CURRENT FLOW THROUGH INTERFACE BOARD 806-4549

The board contains two heat relays (K2 and K3), and two basket lift relays (K1 and K4). *NOTE: On factory-original units not equipped with basket lifts, the board will have no basket lift relays installed.* LEDs are provided to assist in troubleshooting.

P/N 806-4549 INTERFACE BOARD LED DIAGNOSTIC LIGHTS	
12V	**Indicates 12 VAC from transformer**
24V	**Indicates 24 VAC from transformer**
GV	**Indicates 24 VAC to gas valve**
PWR	**Indicates 24 VAC to PWR via K1 (L) or K2 (R or F)**
AIR	**Not Applicable to Decathlon Series Gas Fryers**

Thermostats

Different types of thermostats are used in Decathlon Series gas fryers, depending on the fryers' configuration.

Fryers equipped with an optional backup operating-thermostat/electronic thermostat controller: The temperature is adjusted by changing the setting of the dial.

Fryers equipped with computer controls have a *temperature probe*. In this configuration, the probe resistance varies directly with the temperature. That is, as the temperature rises, so does resistance at a rate of approximately 2 ohms for every 1° (°F or °C). Circuitry in the computer monitors the probe resistance and controls burner firing when the resistance exceeds or falls below programmed temperatures (setpoints). The temperatures are programmed by means of a keypad on the face of the computer.

All Decathlon Series gas fryers are equipped with a *high-limit thermostat*. In the event that the fryer fails to properly control the oil temperature, the high-limit thermostat prevents the fryer from overheating to flash point. The high-limit thermostat acts as a normally closed power switch that opens when exposed to temperatures above 410°F [(210°C)- CE] to 450°F [(232°C)- non-CE]. CE and non-CE high-limits are not interchangeable.

1.2 Accessing Fryers for Servicing

⚠ DANGER
Moving a fryer filled with cooking oil/shortening may cause spilling or splattering of the hot liquid. Follow the draining instructions included with the fryer before attempting to relocate a fryer for servicing.

1. Shut off the gas supply to the unit. Unplug the power cords. Remove any attached restraining devices.

2. Disconnect the unit from the gas supply.

3. Relocate the fryer for service accessibility.

4. After servicing is complete, reconnect the unit to the gas supply, reattach restraining devices, and plug in the electrical cords.

1.3 Cleaning the Gas Valve Vent Tube (if applicable)

1. Set the fryer power switch and the gas valve to the "OFF" position.

2. Carefully unscrew the vent tube from the gas valve. **NOTE:** The vent tube may be straightened for ease in removal.

3. Pass a piece of ordinary binding wire (.052 inch diameter) through the tube to remove any obstruction. Remove the wire and blow through the tube to ensure it is clear.

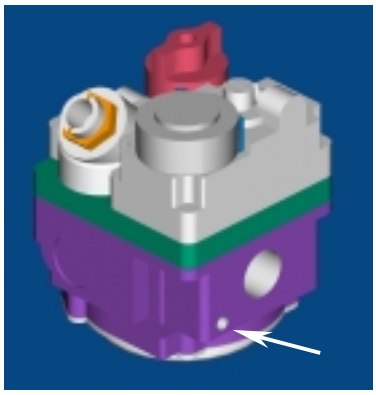
4. Reinstall tube and bend so that the opening is pointing downward.

1.4 Adjusting Burner Manifold Gas Pressure

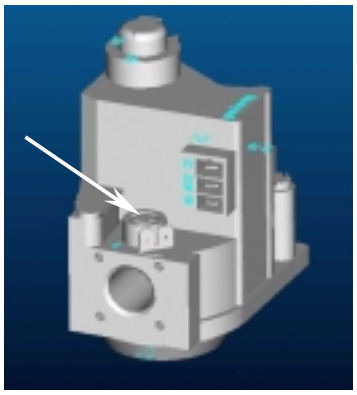
⚠ WARNING
This task should be performed by qualified service personnel only.

1. Ensure that the gas valve knob is in the "OFF" position.

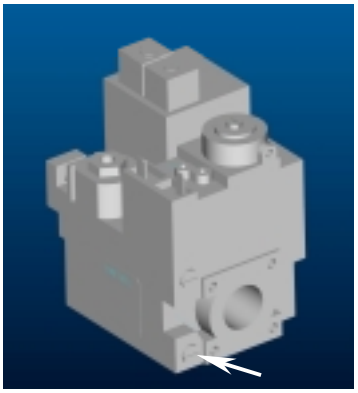
2. Remove the pressure tap plug from the gas valve (see arrows in photos below for location).



Pilot Ignition Valve (Line Voltage)



Non-CE Electronic Ignition Valve



CE Pilot Ignition Valve

3. Insert the fitting for a gas pressure-measuring device into the pressure tap hole.
4. Place the gas valve in the "ON" position then place the fryer power switch in the "ON" position. When the burner lights and continues to burn, note gas pressure reading for correct pressure in accordance with the table on page 1-1.
5. To adjust burner gas pressure, remove the cap from the gas valve regulator and adjust to correct pressure.
6. Place the fryer power switch and the gas valve in the "OFF" position. Remove the pressure-measuring device fitting from the pressure tap hole and reinstall the pressure tap plug.

1.5 Adjusting the Pilot Flame

1.5.1 Main Pilot

1. Remove the cap from the pilot adjustment screw hole on the gas valve.

2. Using a small, flat-tipped screwdriver, turn the pilot adjusting screw counterclockwise to increase length of flame or clockwise to decrease length of flame. Adjust to obtain a flame from 1 inch to 1½ inches long.

3. Reinstall the pilot adjustment screw cap.

1.5.2 Trailing Pilot

1. Adjust the trailing pilot valve located on the burner manifold until a flame from 1 inch to 1½ inches long is obtained.

1.6 Calibrating the Electronic Thermostat Controller and Backup Operating-Thermostat (optional)

1.6.1 Electronic Thermostat Controller

1. Fill the frypot to the lower OIL-LEVEL line with cooking oil/shortening. If solid shortening is used, it must be melted before starting the calibration procedure.

2. Ensure the fryer ON/OFF switch is in the "OFF" position, then light the pilot.

3. Place the fryer ON/OFF switch in the "ON" position. Set the electronic thermostat dial to 325°F (162°C).

4. Allow the oil/shortening to equilibrate at setpoint temperature. This is evident when the burners have cycled on and off several times.

5. Insert a good grade thermometer or pyrometer into the frypot within 3 inches of the probe bulb. Ensure the tip of the thermometer/pyrometer does not touch the frypot burner-tube.

6. If the temperature on the thermometer is higher or lower than 325°F (162°C), the knob is out of calibration.

7. Calibrate the knob by first loosening the setscrew in the knob. After loosening setscrew, slowly turn the knob to match the temperature reading of the thermometer. Tighten the setscrew, ensuring the knob does not move on the shaft during tightening.

8. Allow burners to cycle on and off several times, then recheck oil temperature as described in step #5. If the thermostat dial temperature matches the thermometer temperature, the thermostat is calibrated. If not, repeat step #7.

1.6.1 Electronic Thermostat Controller (cont.)

9. After the calibration is complete, place the fryer power switch in the "OFF" position and disconnect the fryer from the electrical supply.

1.6.2 Backup Thermostat (Optional)

1. Fill the frypot to the lower OIL-LEVEL line with cooking oil/shortening. If solid shortening is used, it must be melted before starting the calibration procedure.

2. Light the pilot.

3. Set the temperature control knob to 350°F (177°C).

4. Let the burners cycle on and off automatically three times in order for the cooking oil/shortening temperature to become uniform. If necessary, stir to get all shortening in the bottom of the frypot melted.

5. Insert a good-grade thermometer or pyrometer probe into the oil/shortening, with the end near the fryer temperature-sensing probe.

NOTE: The temperature-sensing probe is mounted on the frypot tube.

6. When the burner starts for the fourth time, the thermometer/pyrometer reading should be within the range 335-360°F (168-182°C). If it is not, calibrate as follows:

    a. Remove the thermostat knob by pulling straight out on the knob with a firm, steady pull. The temperature adjusting screw is located in the middle of the thermostat shaft.

    b. Insert a small-bladed flat-tipped screwdriver into the adjusting screw. Turn the adjusting screw in ¼-turn increments to adjust the temperature. Turning the screw clockwise decreases the temperature; turning it counter-clockwise increases the temperature. DO NOT allow the thermostat shaft to turn while turning the adjusting screw.

    c. Recheck the thermometer/pyrometer reading the next time the burner comes on.

    d. Repeat steps 4.b. through 4.c. until the thermometer/pyrometer reading remains within the range 335-360°F (168-182°C) through several cycles. If calibration cannot be obtained for any reason, call a Factory Authorized Service Center for service.

    e. Reinstall the thermostat knob.

7. Remove the thermometer or pyrometer.

1.7 Replacing Fryer Components

1.7.1 Replacing the Computer

1. Disconnect the fryer from the electrical supply.

2. Unscrew the two computer panel screws. The computer panel is hinged at the bottom and will swing open from the top.

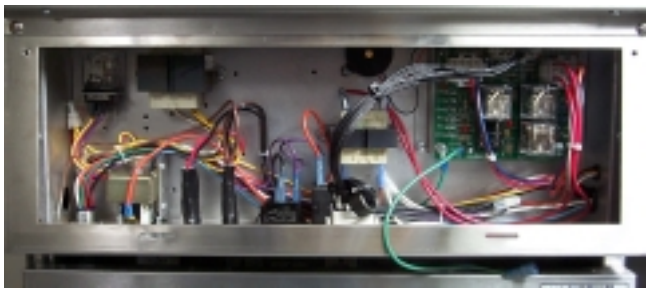
Computer panel in “down” position.

3. Unplug the fryer wiring harness and ground wire from the back of the computer.

Disconnect the 15-pin connector and ground wire (arrows) from the computer.

4. Remove the computer by lifting it from the hinge slots in the fryer control panel frame.

5. Reverse the procedure to install a new computer.



Control panel frame with computer removed.

1.7.2 Replacing the Backup Thermostat (if applicable)

1. Disconnect the fryer from the electrical supply.
2. Drain cooking oil/shortening from frypot.
3. Remove thermostat knob.
4. Disconnect the wiring plug(s)from the component shield/control box.
5. Disconnect leads from terminal block.
6. Remove screws securing the thermostat bracket to fryer.
7. Follow Steps 5-7 in Section 1.7.4 (Replacing the High-Limit Thermostat) to remove thermostat from frypot.
8. Remove defective thermostat from the thermostat bracket and replace with a known good thermostat. Use care not to damage the probe bulb and lead on the new thermostat.
9. Reverse the above steps to install the replacement.

⚠ CAUTION
The Backup Thermostat Control must be calibrated after installation is complete. Refer to Section 1.6.2 for calibration instructions.

1.7.3 Replacing the Temperature Probe (Computer-Equipped Fryers)

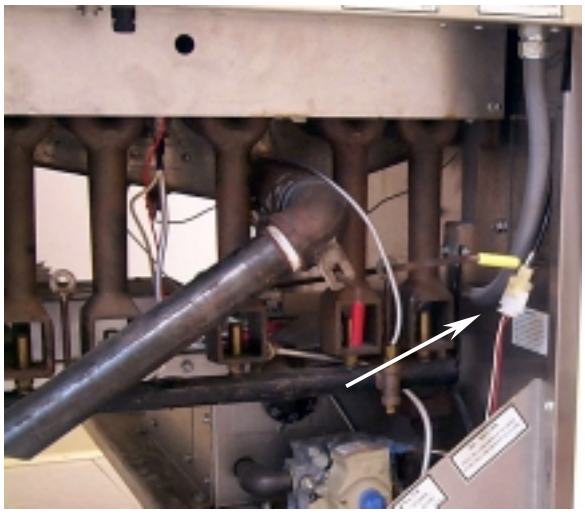
1. Disconnect the fryer from the electrical supply.

2. Drain cooking oil/shortening from the frypot. Allow the frypot to cool completely before proceeding.

3. Remove the fryer door for easier access to the temperature probe. Lift door up, disengage rod from lower door bracket, and then remove door.

Remove door for easier access to temperature probe.

4. Disconnect the probe harness connector (arrow). Use a pin pusher to remove plug from probe wires (probe side only). Retain the plug for re-assembly on new probe.



Disconnect the two-pin probe harness connector (arrow).

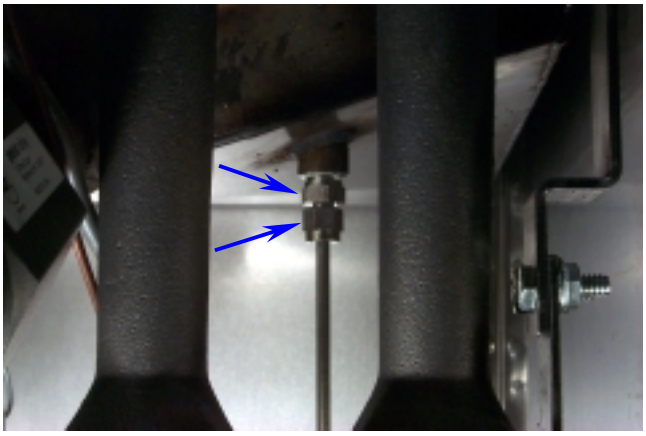
5. Remove the appropriate burners to gain access to the temperature probe (see Steps 20-22 for more detail).

Remove burners to gain access to temperature probe.

1.7.3 Replacing the Temperature Probe (Computer-Equipped Fryers-cont.)

6. Loosen and unscrew completely the compression nut, then the pass-through nut from the frypot. Proceed to the next step before removing probe from frypot.

   Note: The temperature probe can be removed through the top of the frypot as follows: Ensure the two-pin connector has been removed from the probe wiring harness (step 4, this section). Remove the harness insulation. The probe can be pulled through the frypot from the top (complete step 7, this section, prior to removing probe).



Loosen and unscrew completely the compression nut (bottom arrow), then the pass-through nut (top arrow).

7. Remove probe bracket and probe spring from probe inside frypot (bracket location and configuration will vary according to fryer model). Retain mounting hardware for installation of new temperature probe.

First remove the probe bracket (two screws), then the probe spring. Retain mounting hardware for installation of new probe.

8. Carefully remove the probe from the frypot. As the probe is removed, tilt the probe at an angle to facilitate removal (curved probes only).

9. Reverse steps for installation of new probe.

IMPORTANT: When installing new probe, ensure probe is positioned properly with the mounting hardware installed prior to tightening the compression nut**. Once tightened, the probe cannot be repositioned.**

Removing old probe from frypot. (Frypot removed from fryer for clarity).

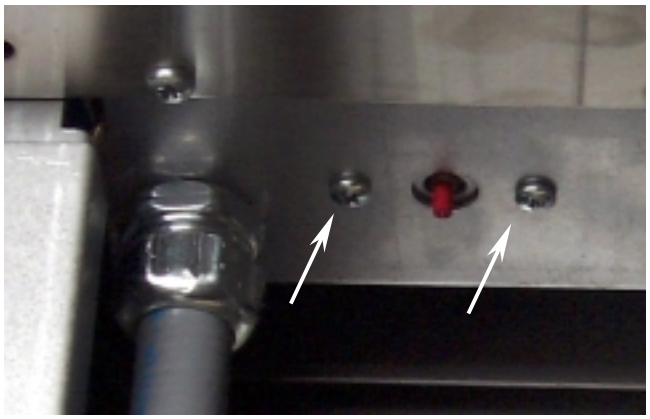
1.7.4 Replacing the High-Limit Thermostat

1. Turn fryer off and drain cooking oil/shortening from the frypot. Allow the frypot to cool completely before proceeding.

2. Perform steps 1-4 in Section 1.7.1, Replacing the Computer.

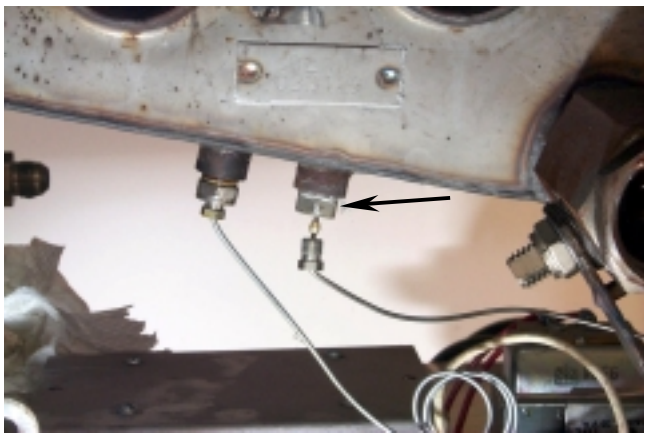
3. Remove fryer door for easier access (see Section 1.7.3, Step #3 for more detail).

4. Remove two screws securing the high-limit mounting-bracket. Do not disconnect wires from high-limit at this time.



Remove screws (arrows) securing high-limit to fryer.

5. Loosen and completely unscrew the compression nut, then the pass-through nut on the frypot bottom. Proceed to the next step before removing high-limit from frypot.



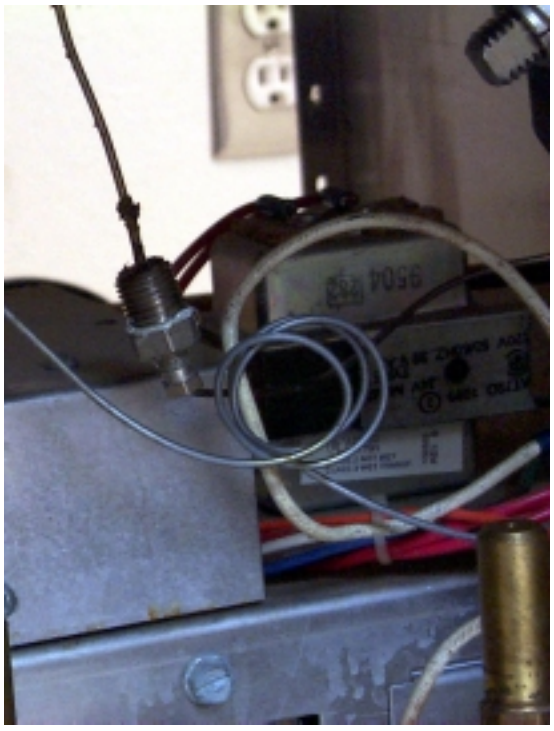
Compression nut unscrewed. Unscrew the pass-through nut (arrow)

1.7.4 Replacing the High-Limit Thermostat (cont.)

6. Remove high-limit mounting bracket and high-limit spring inside frypot. Retain mounting hardware for installation of new high-limit.

Remove high-limit mounting hardware. Retain mounting hardware for installation of new high-limit. (Mounting hardware and location will vary according to fryer model.)

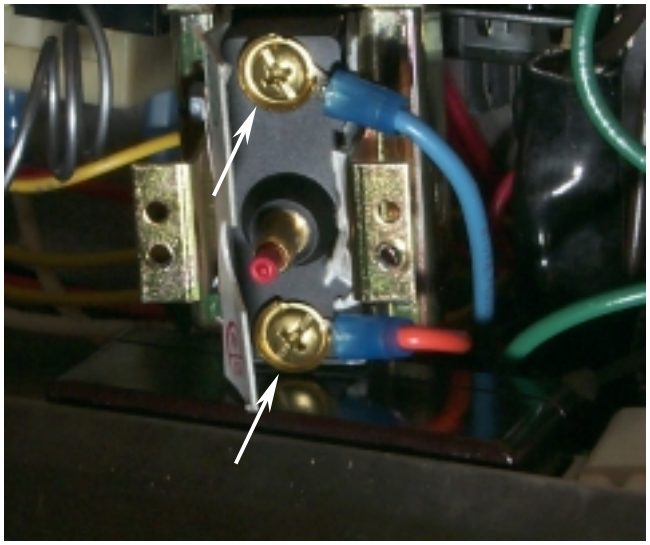
7. Carefully pull high-limit capillary tube and bulb out of the frypot from the bottom.



Remove high-limit capillary tube and bulb from the bottom of the frypot.

1.7.4 Replacing the High-Limit Thermostat (cont.)

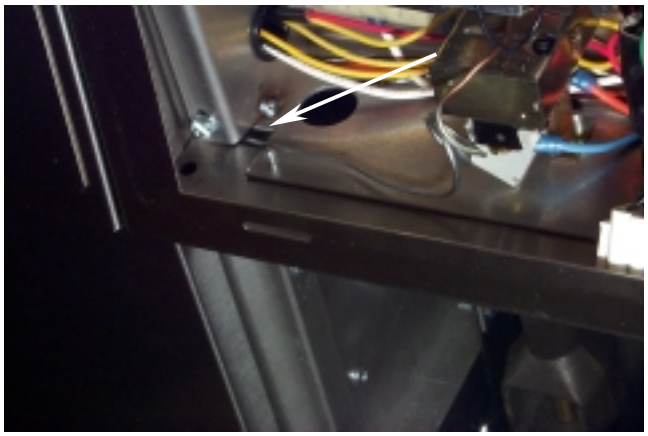
8. Mark and disconnect wires at the high-limit in the component box.



Mark and disconnect high-limit wiring (arrows). (Reconnect wires to the same terminals on the replacement high-limit.)

9. Remove high-limit from fryer by pulling the capillary tube and bulb through the component box opening (arrow). (This may require removal of the control panel frame.)

10. Reverse the above steps for high-limit installation.



Pull the capillary tube and bulb up and through the component box opening to remove old high-limit. Removing the control panel frame will facilitate high-limit removal. Replace control panel frame after new high-limit has been installed.

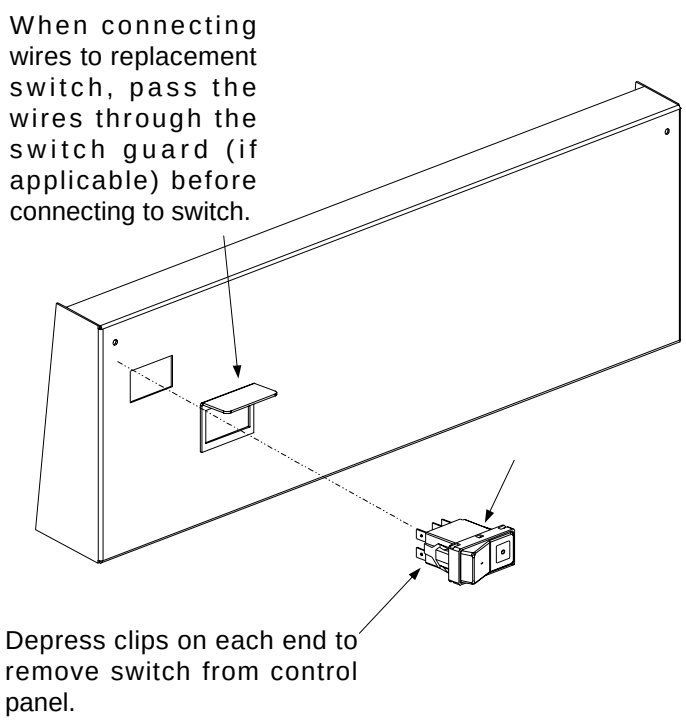
IMPORTANT: When installing new high-limit or backup thermostat, ensure the capillary tube and bulb are positioned properly with the mounting hardware installed prior to tightening the compression nut**. Once tightened, the capillary tube cannot be repositioned.**

1.7.5 Replacing Rocker Switches

1. Disconnect the fryer from the electrical supply.

2. If switches are located on front panel, remove the screws securing panel to fryer. Do not allow the panel to hang on the switch wiring harness; use some type of support. If the switches are located in a control box within the fryer, remove the screws securing the switch panel to the control box. Do not allow the switch panel to hang from the switch wiring harness.

3. Depress the retaining clips (see illustration below) and push the switch out of the slot. If there is a switch-guard present, retain it for installation of the replacement switch.


When connecting wires to replacement switch, pass the wires through the switch guard (if applicable) before connecting to switch.
Depress clips on each end to remove switch from control panel.

4. Remove wires one at a time from the switch being removed and connect to the replacement switch until all wires are transferred.

5. Reverse the above steps for reassembly.

1.7.6 Replacing the Gas Valve

⚠ DANGER
Drain the frypot or remove the handle from the drain valve before proceeding further.

1. Disconnect fryer from electrical and gas supplies.
2. Disconnect the wires from the gas valve terminal block, marking each wire to facilitate reconnections. For 120VAC gas valves, disconnect the black wire from the high-limit, then remove the bobtail connecting the white wire.
3. Remove the high-limit thermostat wire from the gas valve pilot coil (all but 120VAC valves).
4. Remove the pilot gas line fitting from the gas valve.
5. Remove the pipe union collars to the left and right of the gas valve and remove the valve.
6. Remove the pipefitting from the old gas valve and install on the replacement valve, using Loctite™ PST567 or equivalent pipe thread sealant on threads. Do not apply sealant to the first two pipe threads. Doing so will clog and damage the gas valve.
7. Reverse steps 1-5 to install the replacement gas valve.

1.7.7 Replacing the Pilot Assembly

1. Remove the pilot tubing from the bottom of the pilot assembly.
2. If the pilot is an electronic ignition pilot, disconnect the ignition cable and the sense wire.
3. Remove the two pilot mounting screws from the pilot mounting-bracket and remove the pilot.
4. Reverse the procedure to replace the pilot assembly.

NOTE: The above procedure is applicable to standing, electronic ignition and trailing pilot assemblies.

1.7.8 Replacing the Frypot

1. Open fryer doors on fryer and remove filter pan (if applicable). Ensure computer and all power switches are off. Drain and dispose of or store oil/shortening from all frypots prior to moving fryer.

⚠ DANGER
Hot cooking oil/shortening will cause severe burns. Never attempt to move this appliance when filled with hot cooking oil/shortening or to transfer hot cooking oil/shortening from one container to another.

2. Turn gas valve off, then turn gas off at supply valve or meter. Disconnect supply line from gas manifold at rear of fryer.

NOTE: If restraints are installed on the fryer, disconnect restraints prior to disconnecting the gas supply line.

3. Unplug fryer from electrical supply source.

4. Remove fryer door for access to cabinetry components. Lift door up, disengage rod from lower door bracket, remove and set door aside.

5. Remove basket hanger from flue cap by lifting up and off of fryer. (Some units may have a built-in flue deflector on the basket hanger). Units with basket lifts will require the removal of the lift arms prior to removing the basket hanger.

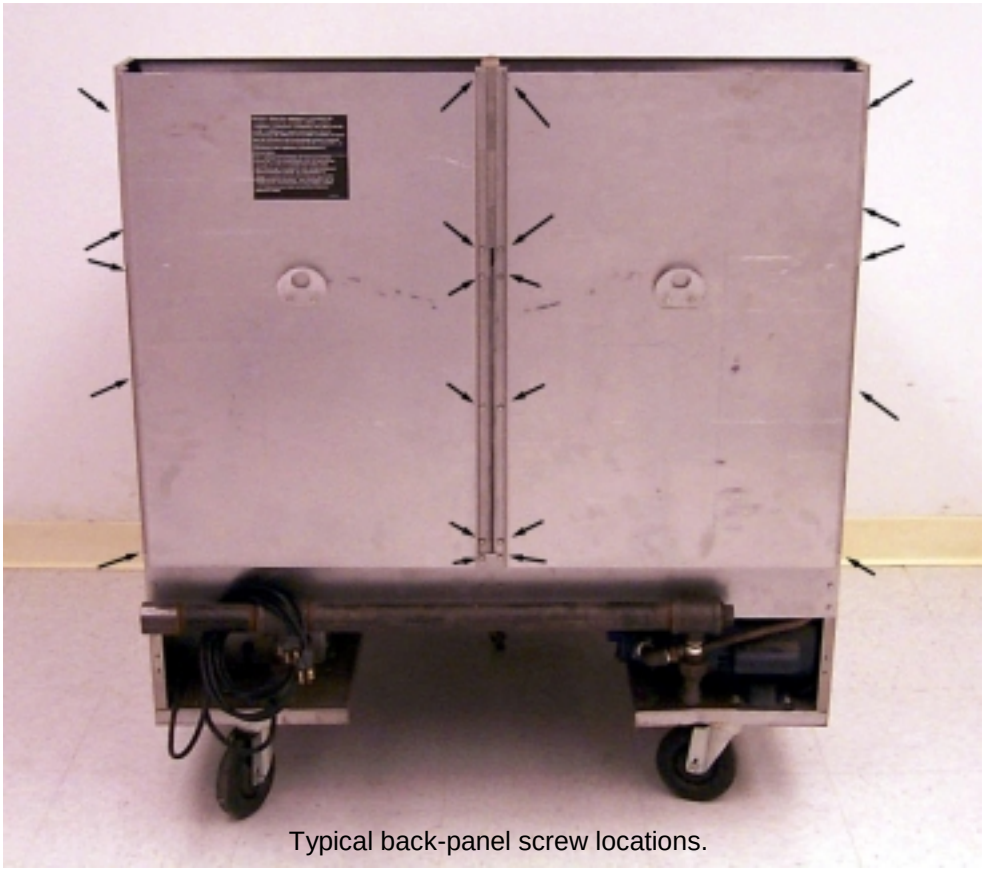
Removing basket hanger.

6. Carefully pry up capping strip with a screwdriver or similar tool. Remove capping strip and set aside.

Removing capping strip.

1.7.8 Replacing the Frypot (cont.)

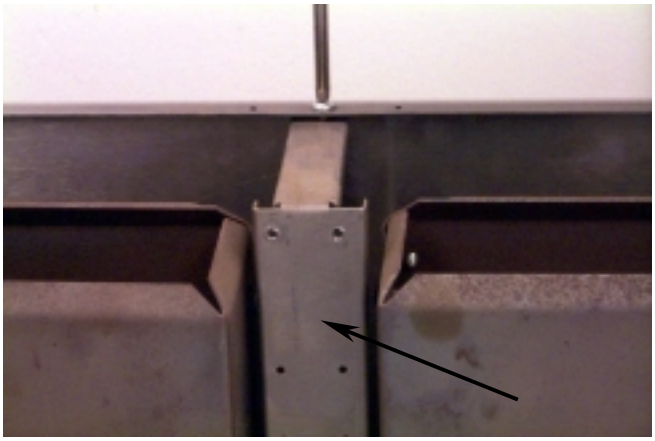
7. Locate all screws securing back panels. Screw location/orientation will vary according to fryer model.



Typical back-panel screw locations.

8. Remove back panels on fryer. Retain screws for re-assembly.

9. Remove screw securing back-panel brace to flue cap. Support brace with hand while removing screw to prevent brace from falling away. Remove brace and set aside for reassembly.



Removing back panel to flue cap brace (arrow).

1.7.8 Replacing the Frypot (cont.)

10. Remove screws securing flue-cap braces to frypot (a nut-driver with an extension or long screwdriver is required). Use care not to drop the screws into the flues. If this happens, the screws can be retrieved when the flue is removed (Step 16). Use a screwdriver or similar tool to free flue cap from frypots. Remove flue cap by lifting up and off of fryer.

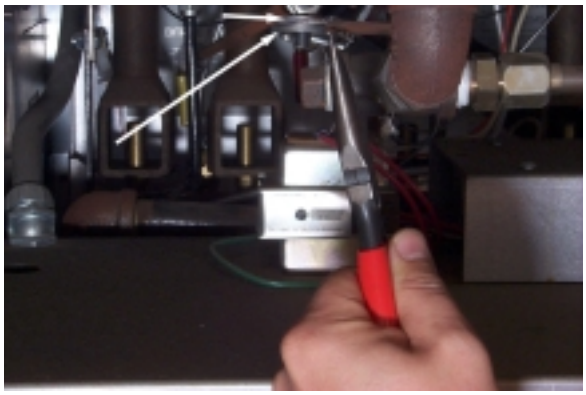
Removing flue cap.

11. Remove gas manifold pipe for access to gas manifold shield by disconnecting at the unions. Ensure gas supply is shut off and supply line is disconnected prior to removing. Set gas manifold aside. Remove screws securing gas manifold shield. Remove shield to access oil-return plumbing components connected to the frypots.

    NOTE: For units without built-in filtration skip the steps pertaining to removal/replacement of oil-return plumbing.

Removing gas manifold shield.

12. Remove cotter-pin from oil-return actuator rod. Observe washer placement prior to removing rod from the valve actuator (arrows). Disconnect actuator rod and remove washers. Set washers aside for later re-assembly.

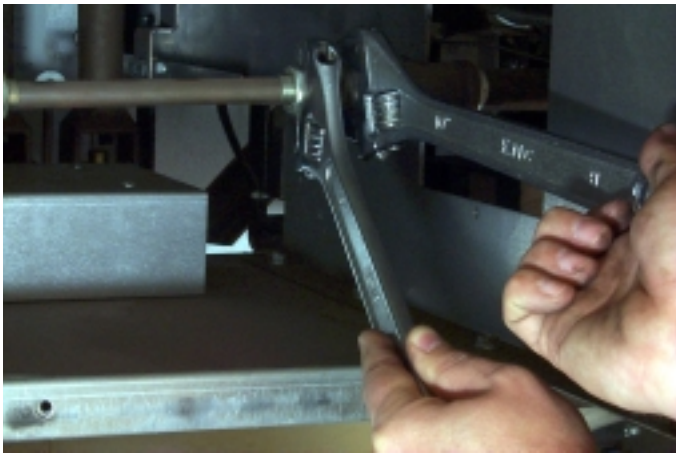


Disconnecting oil-return linkage from valve.

1.7.8 Replacing the Frypot (cont.)

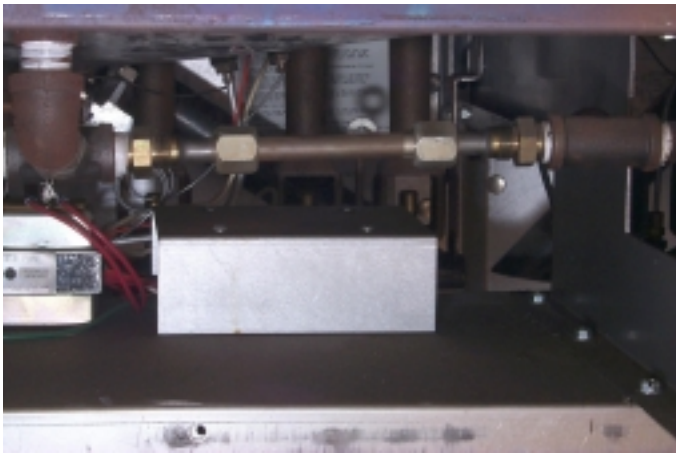
13. Remove steel line from oil-return valve and nipple by loosening flare fittings on both ends. Hold backup with an adjustable wrench when removing fittings.

    (*Absorbent cloth or paper towels should be placed under the oil line prior to removal, to catch any oil remaining in the lines.*)



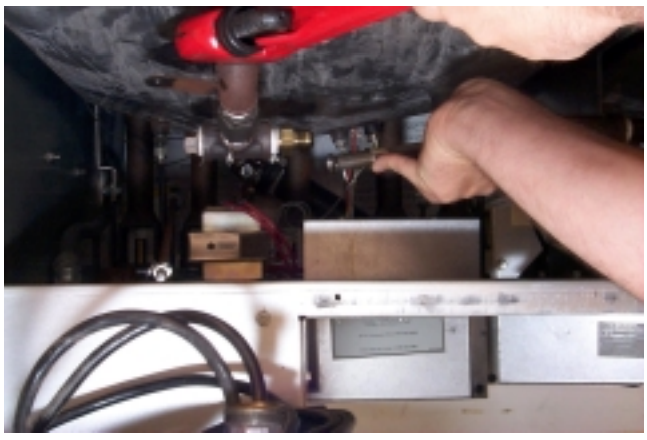
Holding backup while unscrewing flare nut on oil-return line.

14. Unscrew both flare fittings completely prior to line removal. Remove oil-return line and set aside (see Step 15 if line does not disengage easily).



Remove oil-return line after disconnecting flare nuts.

15. Turning the oil-return valve slightly outward with a pipe wrench or similar tool will facilitate return-line removal.



Turn the oil-return valve slightly outward to facilitate removal of the oil-return line.

1.7.8 Replacing the Frypot (cont.)

16. Remove four bolts securing flue to the frypot being removed. Remove the flue by sliding back and away until clear of frypot. Retrieve any screws dropped into the flue during removal of the flue cap to frypot bracket.

Removing bolts (arrows) securing flue to frypot.

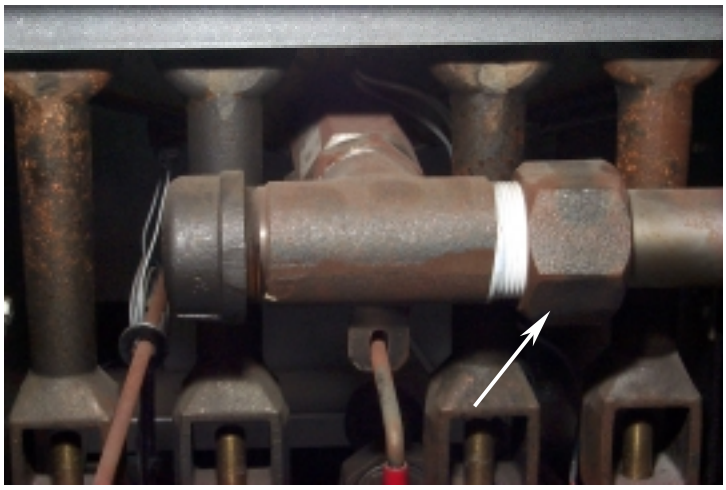
17. Remove oil-return valve from frypot (see Step 15 for detail). Turn the valve assembly counter-clockwise to remove. If nipple remains in frypot, remove it also. Set aside for reassembly.

18. Remove drain extension from elbow on drain valve. Set aside for reassembly.

    NOTE: Drain extensions will vary in shape and size according to fryer model.

Removing drain extension.

19. If fryer is equipped with a front drain manifold, disconnect manifold at slip-nut fitting and remove.



On front drain manifolds, disconnect the slip-nut fitting (arrow) to remove.

1.7.8 Replacing the Frypot (cont.)

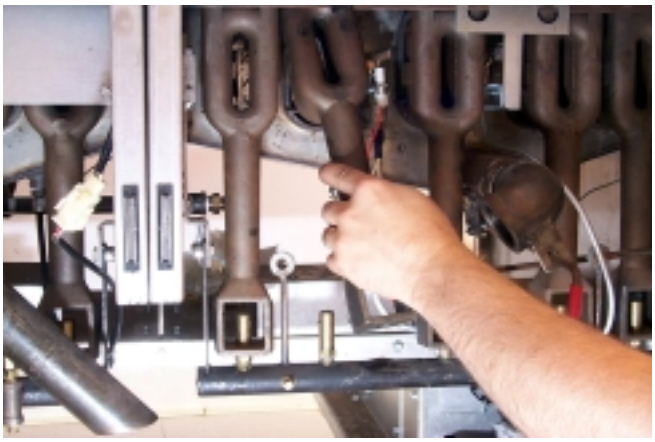
20. Remove the burner shield. Loosen burner bolts (two per burner) that secure burners to the burner support rail.

    NOTE: On most fryers, do not remove bolts from burners. Some fryers have an additional bracket that warrants removal of the burner bolts.

Loosening burner bolts prior to burner removal.

21. Lift each burner upward to clear the orifice, then slant the top of the burner inward to clear the burner-brace keyholes.

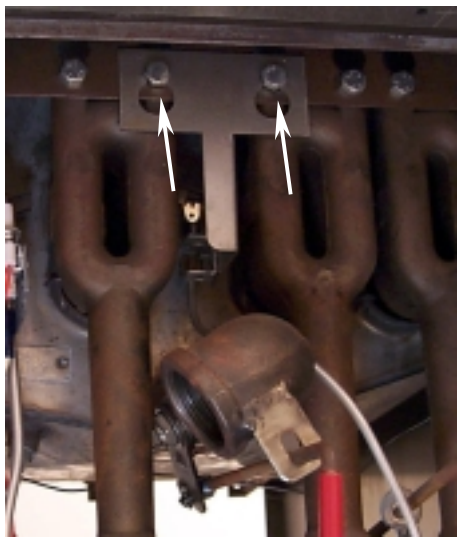
    NOTE: On older Decathlon fryers, the right-center and center burners cannot be removed until the trailing pilot assembly is removed (explained in step 22).



Removing burners from fryer.

22. On Decathlon fryers with a burner-mounted trailing pilot, loosen the bolts securing the pilot assembly to the burners and remove.

    NOTE: Current production units do not require removal of trailing pilot when removing burners.



Old-style trailing pilot bracket is mounted on burners.

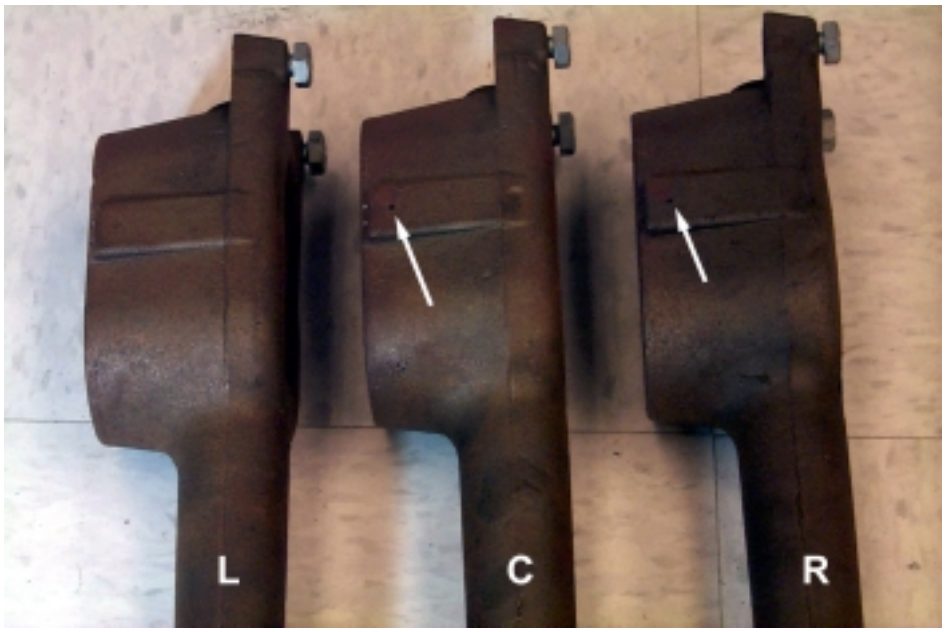
1.7.8 Replacing the Frypot (cont.)

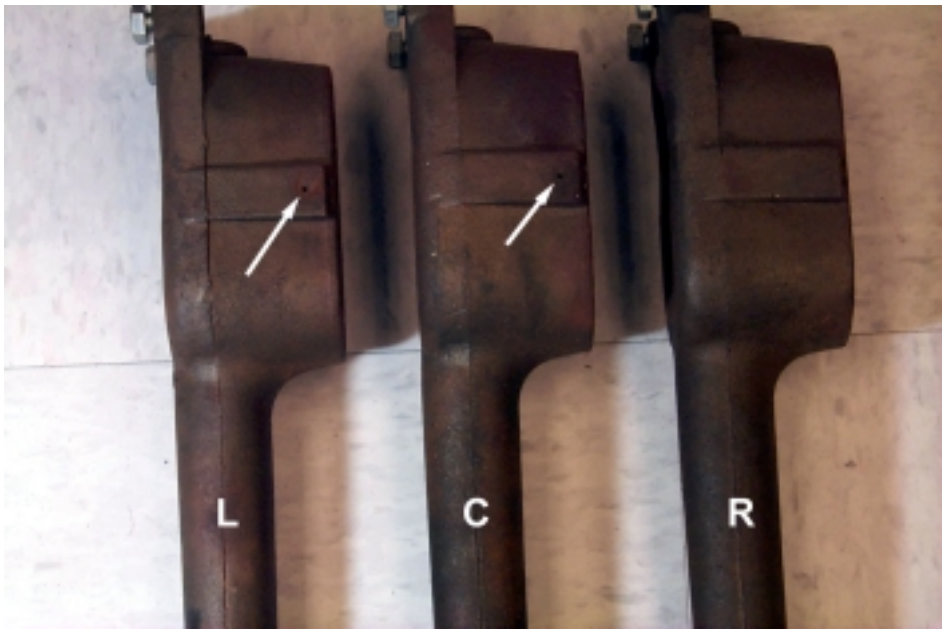
Each burner is unique in the flame-transfer hole configuration and must be reinstalled correctly:

Left burners (L): Flame transfer hole is on the right side of the burner head.

Center burners (C): Flame transfer hole is on both sides of the burner head.

Right burners (R): Flame transfer hole is on the left side of the burner head.





1.7.8 Replacing the Frypot (cont.)

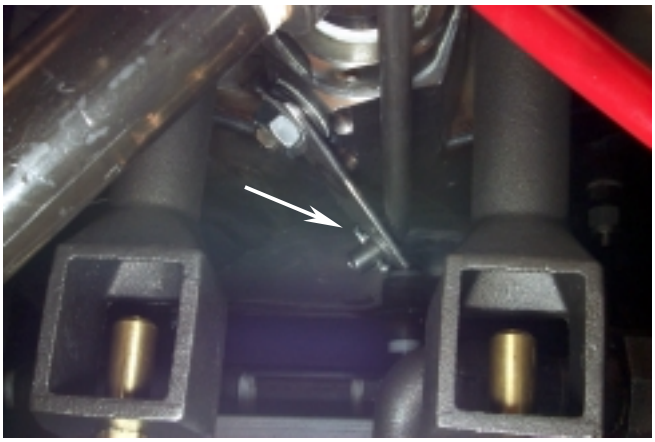
23. Remove screw(s) securing the electronic or standing pilot bracket to the frypot bracket. Reposition ignitor assembly down and away from frypot. Use care not to bend, kink or damage the electronic ignition lines and wiring.

    NOTE: Remove the trailing pilot assembly on current production models as follows: Disconnect the pilot supply line from the trailing pilot valve on the burner manifold. Remove the mounting screw(s) as described in Step 23, then remove trailing pilot.

Removing electronic/standing pilot assembly.

24. Remove cotter pin from drain valve linkage, then disconnect actuator rod from drain valve actuator.

25. Remove elbow (tee-fitting on fryers equipped with front manifold) and nipple from the drain valve.



Remove cotter pin (arrow), then disconnect the actuator rod.

26. If ball-retainer nut breaks loose and unscrews from the valve, remove it from the elbow nipple and re-install in valve. Use care not to damage the brass threads when removing from elbow nipple, or when re-installing into drain valve.

Ball retainer nut (arrow) on drain valve.

1.7.8 Replacing the Frypot (cont.)

27. Remove the temperature probe from frypot. (see Section 1.7.3, Replacing Temperature Probe for specific instructions.

28. Remove the high-limit (see Steps 5-7, Section 1.7.4- Replacing the High-Limit Thermostat) and backup thermostat [see Section 1.7.2- Replacing Backup Thermostat (where applicable)] from frypot.

29. If the fryer is equipped with drain-valve microswitches, mark the wires and microswitch terminals, then disconnect wires from the switch. Secure the wires to prevent damage when frypot is removed.

Left: Microswitch wires marked for removal (ensure microswitch terminals are marked the same as the wires removed). Right: Microswitch mounted to drain valve.

30. Remove bolts from brackets securing burner manifold to frypot. Leave the manifold in place.

Removing bolts (arrows) from burner manifold support brackets (both sides). Leave the burner manifold in place after removing bolts.

1.7.8 Replacing the Frypot (cont.)

31. Using a sharp knife or box-cutter, cut the silicon seal between and in front of the two frypots (two-vat or more). Use care not to scratch stainless steel surfaces.

Cutting frypot seal prior to frypot removal.

32. Remove frypot from fryer by lifting up and out.

33. Position the frypot upside down on a suitable work surface.

Lifting frypot from fryer.

34. Record position of the valve stem in relation to the frypot prior to removing the drain valve. If equipped, remove microswitches and mounting hardware from valve prior to removal. Using a suitable wrench, remove the drain valve from the frypot. Use Loctite PST567 sealant when installing drain valve on replacement frypot.

Removing drain valve from frypot.

35. Reverse the above steps to install replacement frypot.

1.8 Troubleshooting and Problem Isolation

This section is intended to provide technicians with a general knowledge of the broad problem categories associated with this equipment, and the probable causes of each. With this knowledge, the technician should be able to isolate and correct any problem encountered.

Problems you are likely to encounter can be grouped into seven broad categories:

1. Ignition failures
2. Improper burner functioning
3. Improper temperature control
4. Computer-related problems
5. Filtration problems
6. Leakage
7. Basket lift malfunctions.

The probable causes of each category are discussed in the following sections. Troubleshooting guides are included in **Section 1.9** to assist in identifying some of the more common problems.

1.8.1 Ignition Failures

Ignition failure occurs when the ignition module fails to sense a flame within the 60-second time delay period and locks out. Turn the fryer off, locate and fix the problem, then turn fryer back on to clear the module lock.

There are three primary reasons for ignition failure, listed in order of probability:

1. Problems related to the gas and/or electrical power supplies.
2. Problems related to the electronic circuits.
3. Problems related to the gas valve.

Problems Related to the Gas and/or Electrical Power Supplies

The main indicators of this are that an entire battery of fryers fails to light. Verify that the quick disconnect hose is properly connected, the fryer is connected to power, the main gas supply valve is open, and the circuit breaker for the fryer electrical supply is not tripped. Some fryers are equipped with a fryer reset-switch that must be reset each time the fryer is turned off.

Problems Related to the Electronic Circuits

If gas and electrical power are supplied to the fryer, the next most likely cause of ignition failure is a problem in the 24 VAC circuit of fryers equipped with electronic ignition systems, or in the pilot system for those without electronic ignition. If the fryer is equipped with a SUFF/UFF filtration system, first verify that the drain valve is fully closed. (The valve is equipped with a microswitch that must be closed for power to reach the gas valve. Often, although the valve handle appears to be in the closed position, the microswitch is still open.) If the valve is fully closed, or the fryer does not have a filtration system, refer to the troubleshooting guides in this chapter.

Problems Related to the Gas Valve

If the problem is not in the 24 VAC circuit or pilot system, it is most likely in the gas valve itself, but before replacing the gas valve refer to the troubleshooting guides in this chapter.

1.8.2 Improper Burner Functioning

With problems in this category, the burner ignites but exhibits abnormal characteristics such as "popping", incomplete lighting of burner, fluctuating flame intensity, and flames "rolling" out of the fryer.

"***Popping***" indicates delayed ignition. In this condition, the main gas valve is opening but the burner is not immediately lighting. When ignition does take place, the excess gas "explodes" into flame, rather than smoothly igniting.

The primary causes of popping are:

- Incorrect or fluctuating gas pressure
- Misdirected or weak pilot flame (main and/or trailing pilot)
- Clogged burner flame-transfer holes
- Clogged burner orifices
- Clogged burners
- Inadequate make-up air
- Heat damage to the controller or ignition module
- An out-of-adjustment ignitor or broken ignition wire
- A defective ignition module

1.8.2 Improper Burner Functioning (cont.)

If popping occurs only during peak operating hours, the problem may be incorrect or fluctuating gas pressure. Verify that the incoming gas pressure (pressure to the gas valve) is in accordance with the appropriate CE or Non-CE requirements listed in the Installation and Operation manual that came with the fryer, and that the pressure remains constant throughout all hours of usage. Refer to **Adjusting Burner Manifold Pressure** in Section 1.4 if burner manifold pressure is suspected of being incorrect.

If popping is consistent during all hours of operation, verify that the pilot is properly positioned above the burner orifice and that the pilot pressure is correct. Correct pilot pressure is indicated by a flame 1 to 1½" long. Also verify that ignitor is properly adjusted (electrode tip 1/8" from pilot hood corner). Refer to Section 1.5 for pilot adjustment procedure.

Clogged burners, burner orifices and/or burner flame transfer holes (see Section 1.7.8, page 1-26 for reference) are also likely causes of delayed ignition. Clogged burners are indicated by uneven flame or partial flame on the burner face. Clogged orifices are indicated by no flame. Clogged burner flame transfer holes prevent the outermost burners from lighting immediately with the middle burners (four- and five-tube frypots).

Another cause of popping is an insufficient air supply or drafts that are blowing the pilot flame away from the burner. Check for "negative pressure" conditions in the kitchen area. If air is flowing into the kitchen area, this indicates that more air is being exhausted than is being replenished and the burners may be starved for air.

If the fryer's gas and air supplies are okay, the problem most likely is with one of the electrical components. Examine the ignition module for signs of melting/distortion and/or discoloration due to excessive heat build-up in the fryer. (This condition usually indicates improper flue performance.). Also, examine the controller for the same conditions. A melted or distorted ignition module is automatically suspect and should be replaced, but unless the condition causing excessive heat in the fryer is corrected, the problem is likely to recur.

Next, ensure the ignition wire is tightly connected at both ends and examine it for obvious signs of damage. Again, if damage is due to excessive heat in the fryer, that problem must also be corrected.

Check for proper operation by disconnecting the wire from the ignitor, inserting the tip of a screwdriver into the terminal, and holding it near the frame of the fryer as the power switch is placed in the "ON" position. A strong, blue spark should be generated for at least 60 seconds.

⚠ DANGER
MAKE SURE YOU ARE HOLDING THE INSULATED HANDLE OF THE SCREWDRIVER AND NOT THE BLADE. THE SPARKING CHARGE IS APPROXIMATELY 25,000 VOLTS.

Ensure the gap setting of the ignitor is correct (electrode tip 1/8" from pilot hood corner).

1.8.2 Improper Burner Functioning (cont.)

Burners lighting on the left side only may be caused by a trailing pilot problem (four- and five-tube frypots) or improper burner manifold pressure.

Fluctuating flame intensity is normally caused by either improper or fluctuating incoming gas pressure, but may also be the result of variations in the kitchen atmosphere. Verify incoming gas pressure in the same way as for "popping", discussed in the preceding paragraphs. Variations in the kitchen atmosphere are usually caused by air conditioning and/or ventilation systems starting and stopping during the day. As air conditioning/ventilation systems start and stop, the pressure in the kitchen may change from positive or neutral to negative, or vice versa. Changes in airflow patterns may affect flame intensity.

Flames "rolling" out of the fryer are usually an indication of negative pressure in the kitchen. Air is being sucked out of the fryer enclosure and the flames are literally following the air. If negative pressure is not the cause, check for high burner-manifold gas pressure in accordance with the procedures in Section 1.4. An obstructed flue, which prevents the fryer from properly exhausting, may also be the cause.

Excessively noisy burners, especially with ***flames visible above the flue opening***, may indicate that the burner gas pressure is too high, the tube diffusers are defective or burned out, or it may simply be that the gas valve vent-tube is blocked (if applicable). If the gas pressure is correct, the tube diffusers are intact and in good condition, and the vent-tube is unobstructed (if applicable), the gas valve regulator is probably defective.

1.8.3 Improper Temperature Control

Temperature control, including the melt cycle, is a function of several interrelated components, each of which must operate correctly. The principal component is the temperature probe. Depending upon the specific configuration of the fryer, other components may include the interface board, the computer/controller itself, and the ignition module.

Improper temperature control problems can be categorized into melt cycle problems and failure to control at setpoint.

Failure to Control at Setpoint

In fryers equipped with an electronic thermostat controller/optional backup operating-thermostat, the problem will be with the thermostats themselves. Possible causes are that the thermostats are out of calibration or defective. Refer to Section 1.6 for instructions on calibrating the thermostats.

In fryers equipped with computers, the problem may be with the temperature probe, the interface board, or the computer. Refer to the troubleshooting guides in this chapter.

1.8.4 Computer-Related Problems

Compu-Fry Features

Sensitivity or "*Stretch and Shrink Time*"

Sensitivity or stretch time is a programmable feature that increases or decreases the cook time countdown based on variations in the oil temperature from the setpoint.

The sensitivity for each product button has 10 settings (0 through 9). A "0" sensitivity setting will disable the feature (no change in cooking time), while a nine will provide the highest sensitivity or most change. The correct sensitivity for any product is based on the product, its density, the setpoint temperature, and the customer's own requirements.

Common Computer Complaints

Most problems concerning computers have to do with programming them. There are four common complaints. The complaints, their causes, and corrective actions are:

1. Fryer constantly displays "HI".

   Cause: Setpoint incorrect or missing.

   Corrective Action: Press ☑ 1 6 5 0, enter the correct setpoint using keypad, then press 🌡 to lock in the setpoint.

2. Temperature is displayed in Celsius.

   Cause: Computer is programmed to display in Celsius.

   Corrective Action: Press ☑ 1 6 5 8.

3. Temperature is constantly displayed.

   Cause: Computer is programmed for constant temperature display.

   Corrective Action: Press ☑ 1 6 5 L.

4. Computer times down too slowly or too quickly.

   Cause: Computer is compensating for oil temperature via the sensitivity setting.

   Corrective Action: Reprogram sensitivity setting for each product in accordance with programming instructions in the Compu-Fry Operation and Programming manual, P/N 819-5865.

1.8.5 Filtration Problems

The majority of filtration problems arise from operator error. One of the most common errors is placing the filter paper on the bottom of the filter pan rather than over the filter screen.

Whenever the complaint is "the pump is running, but no oil is being filtered", check the installation and size of the filter paper. Verify that the O-ring on the slip-connection is in good condition. A missing or worn O-ring allows the pump to suck air, decreasing its efficiency.

If the pump motor overheats, its thermal overload will trip and the motor will not start until it is reset. If the pump motor does not start, press the red reset switch located on the rear of the motor. Also, reset the filter circuit breaker located under the fryer control panel. If the pump then starts, something caused the motor to overheat. Maybe several frypots were filtered one after the other and the pump got hot. Letting the motor cool down for at least a half-hour is all that is required in this case. More often, the pump overheated for one of the following reasons:

- Shortening was solidified in the pan or filter lines.

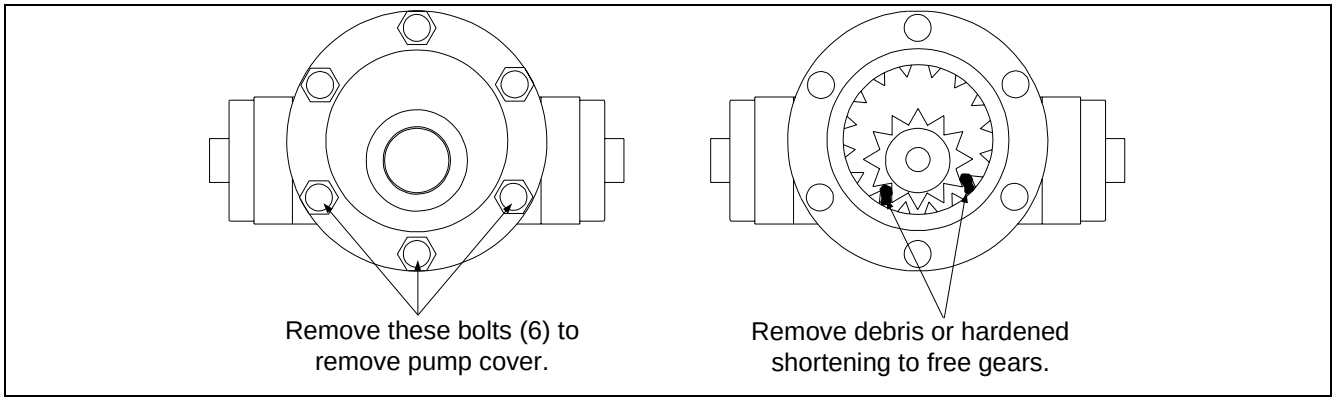
- The operator attempted to filter unheated oil or shortening. Cold oil and shortening are thicker and cause the pump motor to work harder and overheat.

If the motor runs but the pump does not, there is a blockage in the pump. Incorrectly sized or installed paper allows food particles and sediment to pass through the filter pan and into the pump. When sediment enters the pump, the gears bind up causing the motor to overheat, tripping the thermal overload. Solidified shortening in the pump will produce the same result.

A pump seized by debris or hard shortening must be disassembled, cleaned and reassembled.

1. Disconnect power to the filter system.

2. Remove the front cover of the pump to access the gears inside, if the pump is accessible while still inside the cabinet. If the front cover is not accessible, the pump must be removed from the pump motor (remove input/output plumbing from the pump prior to removing pump). Remove three setscrews to disengage the pump from the motor.



1.8.5 Filtration Problems (cont.)

3. Prior to reassembly, the inside housing must be clean and free of any sediment or debris. Failure to completely clean the inside-housing and ring gear will cause gear binding after reassembly.

Incorrectly sized or installed paper will allow food particles and sediment to pass through and clog the suction tube on the bottom of the filter carriage. Particles large enough to block the suction tube may indicate that the crumb tray is not being used.

Pan blockage can also occur if shortening is left in the pan and allowed to solidify. Heater strips (if equipped) on the oil return plumbing are designed to prevent solidification of shortening left in the plumbing. Heater strips will not melt or prevent solidification of shortening in the pan.

Blockage removal can be accomplished by forcing the item out with an auger or drain snake. Compressed air or other pressurized gases should not be used to force out the blockage.

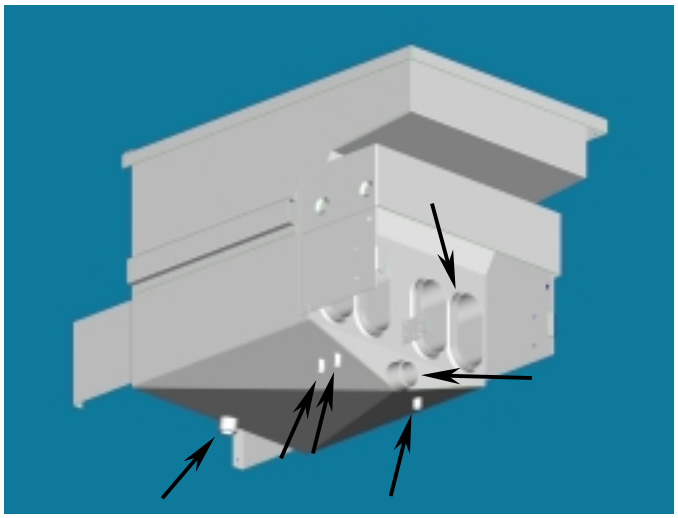
The electronics of the SUFF/UFF filtration systems are simple and straightforward. Microswitches, attached to handles for each vat and wired in parallel, provide the 24 VAC required to activate the pump relay coil when the handles are moved to the ON position. The activated pump relay coil pulls in the pump motor switch, supplying power to the pump motor.

Filter systems equipped with oil-return heaters are wired into the 120 VAC source, which remain energized as long as the unit is plugged in.

1.8.6 Leakage

Frypot leaks are almost always due to improperly sealed high-limit, thermostats/temperature probe and drain fittings. When installed or replaced, each of these components must be sealed with Loctite PST567 sealant or equivalent to prevent leakage. In very rare cases, a leak may develop along one of the welded edges of the frypot, or where the tube is welded to the frypot. When this occurs, the frypot must be repaired or replaced.

If the sides or ends of the frypot are coated with oil/shortening, the most likely cause is spillage over the top of the frypot rather than leakage.

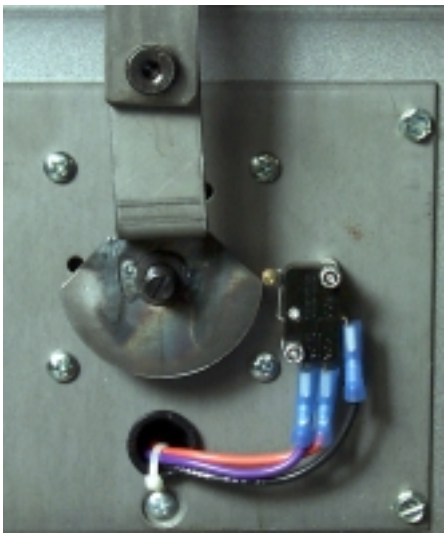


Frypot locations (indicated by arrows) where potential leaks could occur.

1.8.7 Basket Lift Malfunctions

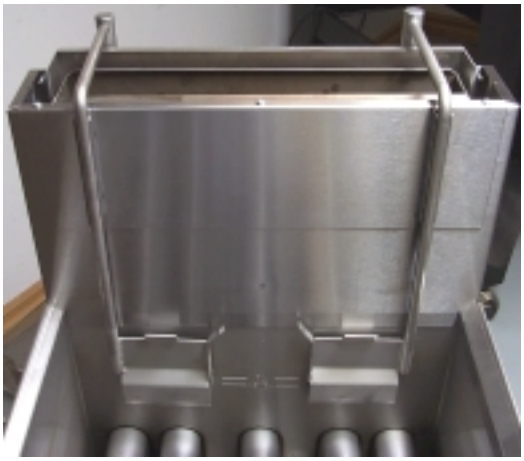
1.8.7.1 Bell-Crank Basket Lifts

Most Decathlon Series gas fryers are equipped with a **bell-crank style basket lift:** A cam and bell crank are connected to the basket lift arm by a flat metal link. The cam is attached to a drive motor. The motor rotates the cam, thus raising or lowering the lift arm linked to the bell crank. A roller-activated microswitch is used to limit travel. When the roller in the microswitch is in contact with the cam, the motor is energized. As the cam rotates, the roller loses contact with the cam and the motor power circuit is broken, de-energizing the motor.



Back view of bell-crank basket lift.

Timing circuitry in the controller initiates and stops basket lift operation. When the product button is pressed, the timing circuitry activates a coil in the basket lift relay to supply power to the motor. The microswitch stops the motor at the lift's lower travel limit and the switch contacts are reversed. At the end of the programmed cooking time, the timing circuit activates the coil once more and the lift rises until the microswitch again loses contact with the cam, opening the motor power circuit and stopping the motor.



Bell-crank basket-lift arms.

Problems with the bell-crank basket lift system can be grouped into two categories:

- Binding/jamming
- Motor and gear problems

Binding/Jamming

Noisy, jerky or erratic movement of the lifts are usually due to lack of lubrication of the lift arm connection points. Apply a light coat of Lubriplate or similar lightweight white grease to the connection points to correct the problem.

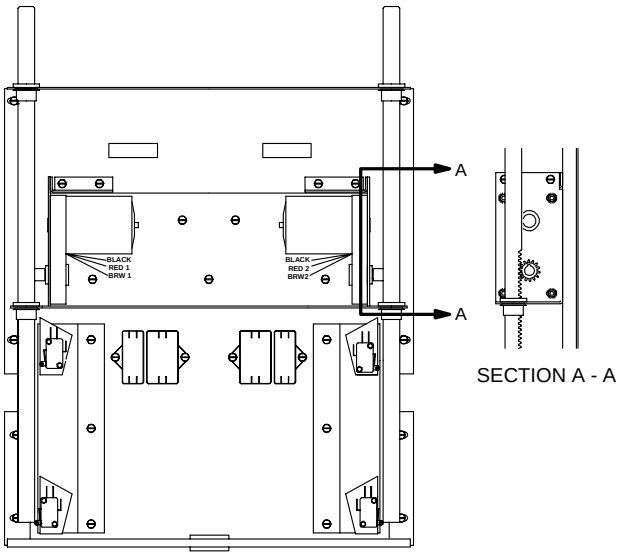
1.8.7.1 Bell-Crank Basket Lifts (cont.)

Motor Problems

If power is reaching the motor but the motor fails to run, the motor is burned out and must be replaced.

1.8.7.2 Modular Basket Lifts

Older Decathlon Series fryers may be equipped with **modular basket lifts**. The modular basket lift consists of a notched rod to which the basket lift arm is attached, a reversible-drive gear motor, and a pair of roller-activated microswitches. The gear motor engages the notches in the rod, moving it up or down. Microswitches at the upper and lower limits of movement stop the motor when the basket is in the full up or full down position. Manual (push-button) controls, or the computer controls voltage to the system.



MODULAR BASKET LIFT

Problems with the modular basket lift system can be grouped into three categories:

- Binding/jamming
- Motor and gear problems
- Electronics problems

Binding/Jamming

Noisy, jerky or erratic movement of the lifts is usually due to lack of lubrication of the rods and their bushings. Apply a light coat of Lubriplate or similar lightweight white grease to the rod and bushings to correct the problem.

Another possible cause of binding is improper positioning of the motor, which prevents the gear from correctly engaging the teeth in the rod. To correct the problem, loosen the screws that hold the motor in place and move it forward or backward until the rod has just enough slack to be rotated slightly.

Motor and Gear Problems

The most likely problem is erratic motion of the lift due to a worn drive gear. Failure to keep the lift rod and bushings properly lubricated will cause unnecessary wear of the gear. The problem is corrected by replacing the worn gear.

Motor and Gear Problems (cont.)

If the lift cycles correctly but fails to remain in the up position, the problem is a failed motor brake. A failed motor brake cannot be repaired and requires replacement of the motor itself. If power is reaching the motor but the motor fails to run, the motor is burned out and must be replaced.

Electronic Problems

This category encompasses problems with the relays, microswitches, capacitors, resistors, interface board, wiring, and controls.

Troubleshooting the electronics of the modular basket lift is simply a process of verifying current flow through the components up to and including the motor. Using a multimeter set to the 250 VAC range, check the connections on both sides of the component for the presence of 120 VAC. The simplified wiring diagrams on the preceding pages identify the components and wiring connection points.

1.9 Troubleshooting Guides

The following troubleshooting guides are intended to assist service technicians in quickly isolating the probable causes of equipment malfunctions by following a logical, step-by-step process.

1.9.1 General Troubleshooting

PROBLEM	PROBABLE CAUSES	CORRECTIVE ACTION
Burner won't ignite. Light in ON/OFF switch is not illuminated.	A. ON/OFF switch is off.	A. Turn ON/OFF switch on.
ON/OFF switch is on, but the switch light is not illuminated.	A. No voltage at switch.	A. Ensure line voltage is present at the switch.
ON/OFF switch is on and the switch light is illuminated, but there is no output to gas valve.	A. Drain microswitch circuit (filter-equipped units) is open.	A. Ensure drain valve is fully closed and microswitch is functioning. Replace microswitch if defective.
	B. Voltage is present at ON/OFF switch, but continuity of the switch in ON position is not "0".	B. ON/OFF switch is defective. Replace switch with a known working switch.
	C. Continuity of thermostat is not "0" (cooking oil/shortening temperature is at least 15°F below electronic/ operating thermostat setting).	C. Thermostat(s) is/are defective. Replace defective thermostat with a known working thermostat.
	D. Gas valve is suspect.	D. Go to "No burner flame" section.

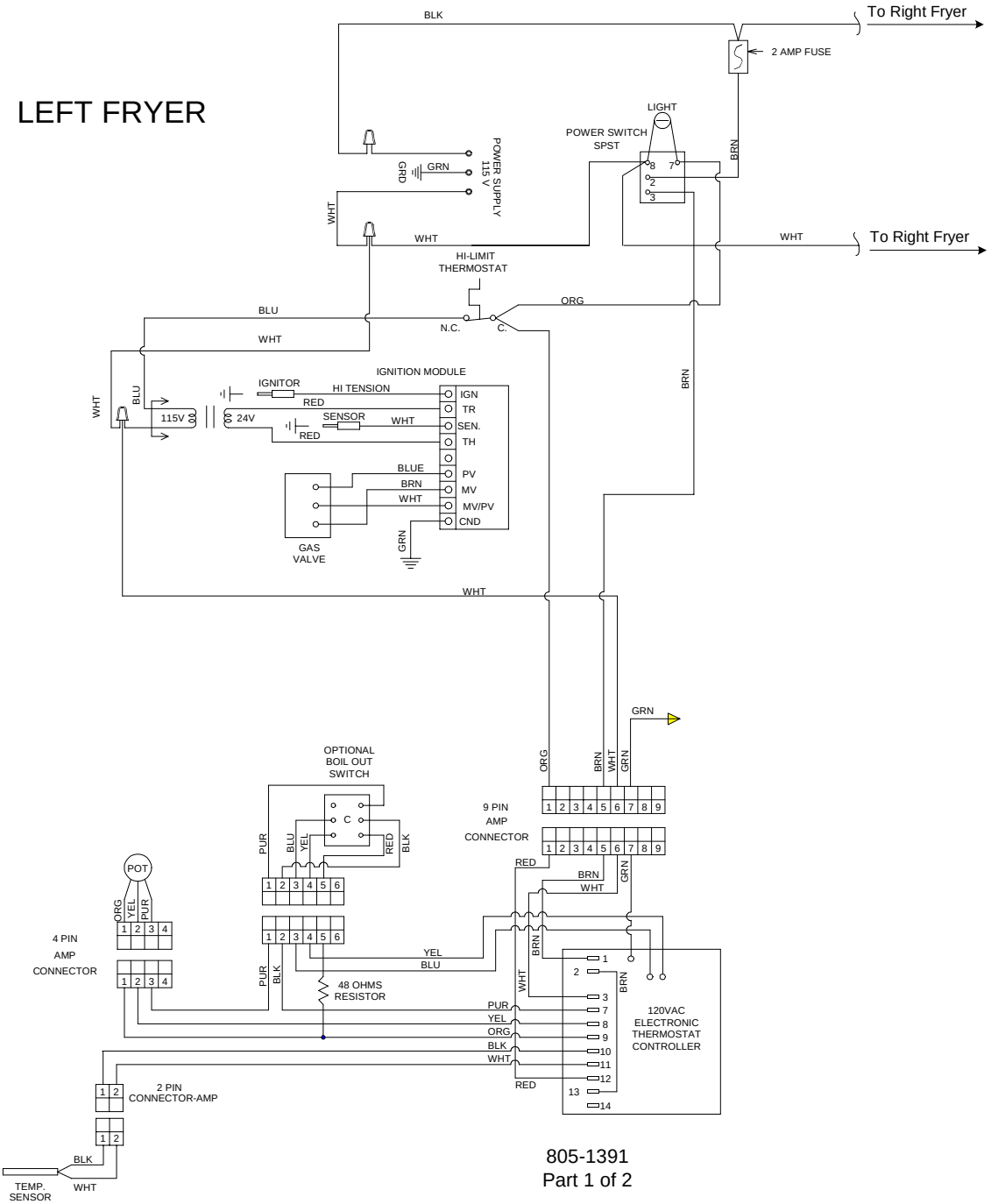
1.9.1 General Troubleshooting

No burner flame.	A. Pilot does not stay lit (fryer is on and thermopile output is approximately 400 millivolts and/or thermocouple is approximately 25 millivolts.	A. Check high-limit switch. Switch continuity should be "0". If not, high-limit switch is defective. Replace high-limit switch.
	B. Pilot does not stay lit (fryer is on and thermopile output is **not** approximately 400 millivolts or thermocouple output is not 25 millivolts.	B. Inspect thermocouple (units without interface board) or thermopile (units with interface board) and replace if defective.
	C. Pilot stays lit, and the high-limit and thermopile/thermocouple are known working, but burners fail to light.	C. Inspect gas valve and replace if defective.
	D. Gas valve is known to be good, but there is not 24 VAC (120VAC on systems so equipped) at the gas valve terminals.	D. Inspect electronic/operating thermostat sensor (while still in frypot) for damage. Replace if bent, dented or cracked. Inspect leads for fraying, burning, breaks and/or kinks. If found, remove and replace thermostat(s). Remove leads from terminal block, allow oil to cool 15°F (8°C) below thermostat setting and check continuity. If continuity is not "0", then thermostat has failed. Replace thermostat(s).
	E. Continuity from terminal block to gas valve electronic/operating thermostat wire is not "0".	E. Inspect wiring for breaks or shorts and repair if necessary.
Fluctuating or erratic lighting of burner flame.	A. Incoming gas supply pressures are not within range [Natural- 6-14" W.C. (1.49-3.49 kPa); Propane- 11-14" W.C. (2.74-3.49 kPa)]	A. Inspect gas supply to fryer. Repair and/or replace faulty components (defective supply shut-off valves, incorrect piping size, etc.)
	B. Air in gas supply lines (new installation).	B. Allow unit to cycle on and off for approximately 30 minutes to force air from gas manifold and lines.
Electronic/operating thermostat will not adjust to correct temperature.	A. Electronic/operating thermostat is out of calibration.	A. Calibrate electronic/operating thermostat. Replace if calibration is not possible.

1.10 Wiring Diagrams

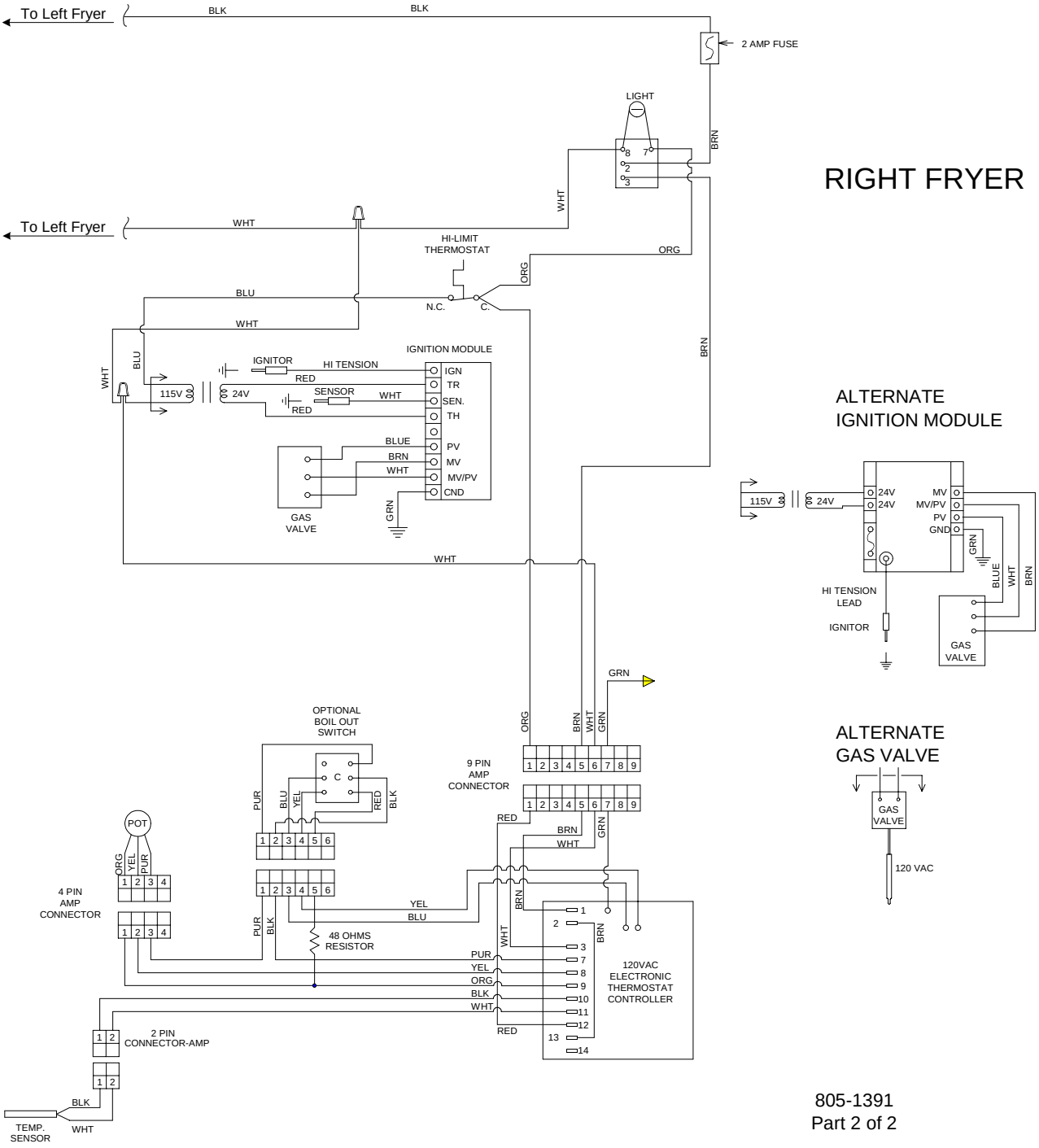
Note: The diagrams in this section depict wiring as of the date of manual publication. It may not reflect design changes made to the equipment after publication. Refer to the wiring diagram affixed to the unit when actually troubleshooting this equipment.

1.10.1 Decathlon Dual-vat, Current Configuration- Part 1 of 2



805-1391
Part 1 of 2

1.10.1 Decathlon Dual-vat, Current Configuration- Part 2 of 2



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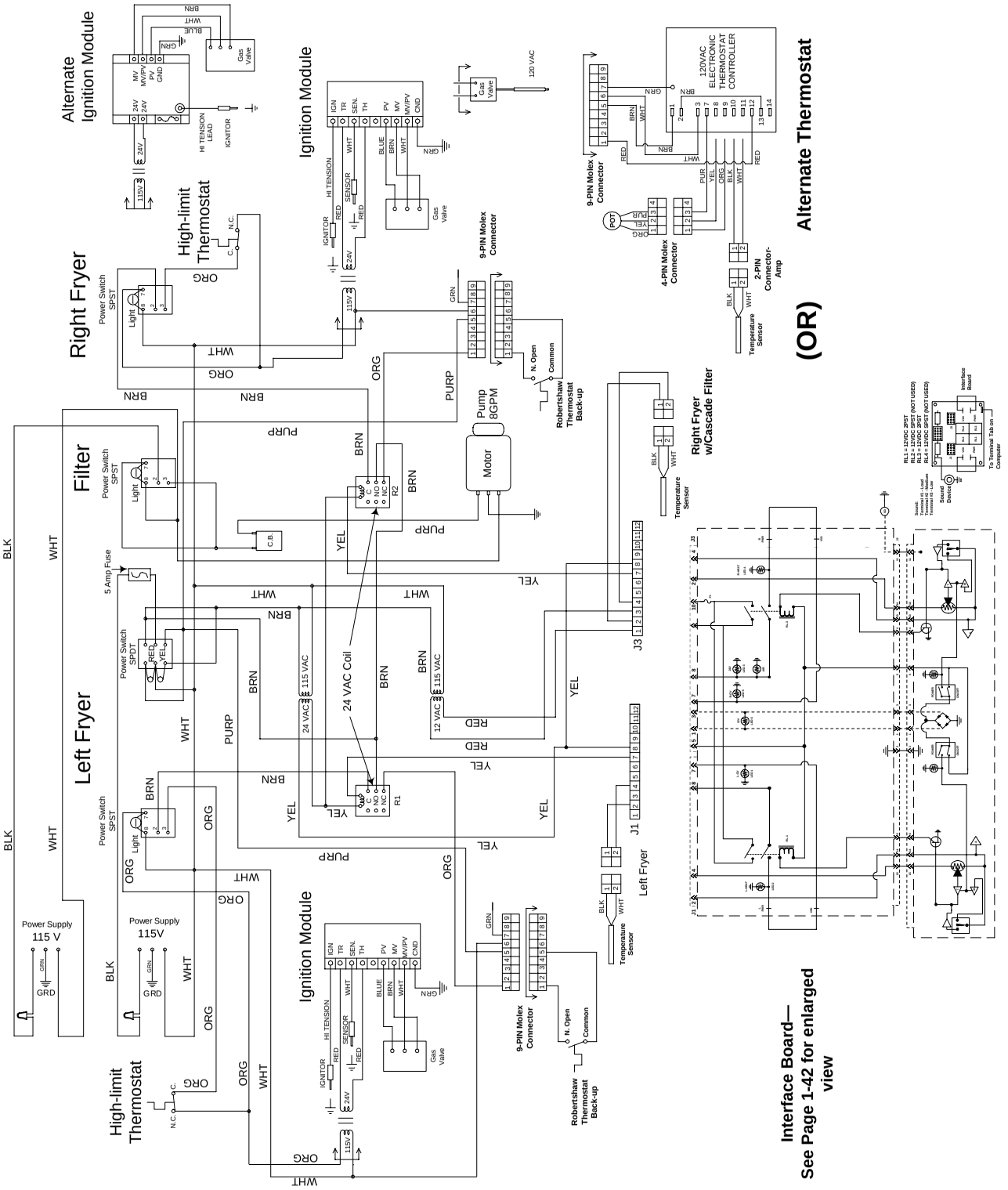
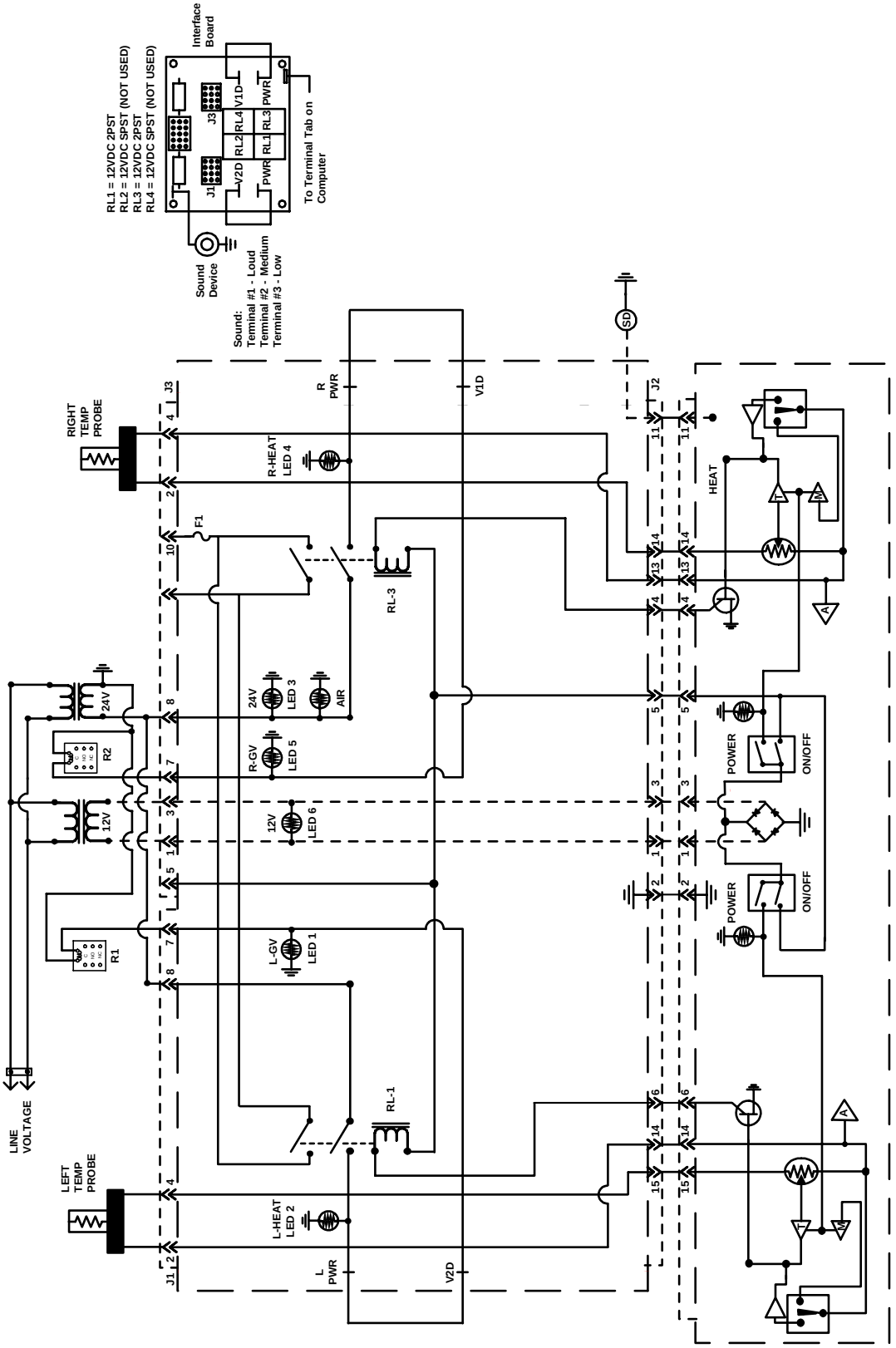
Part 2 of 2

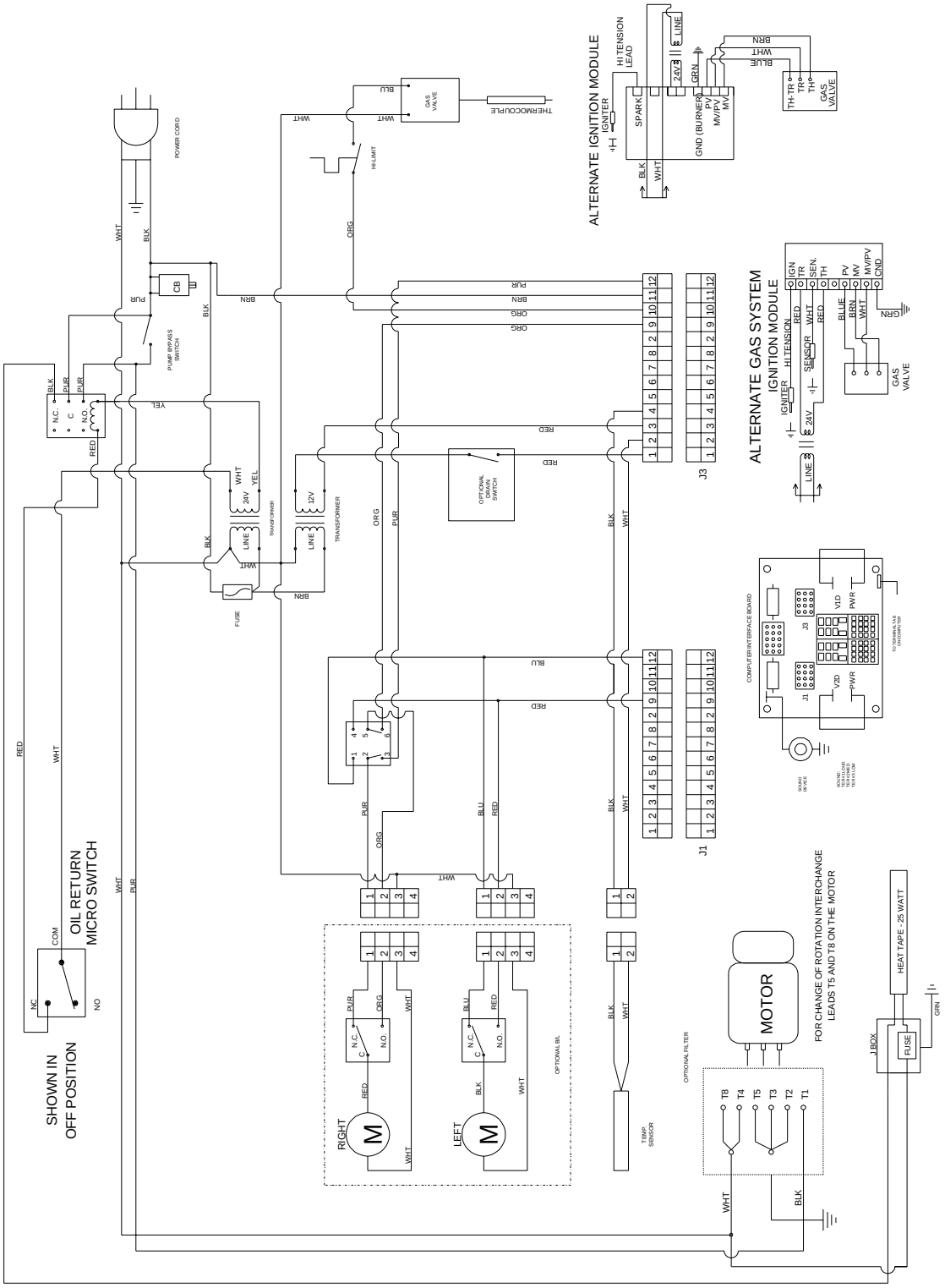
1.10.2 Decathlon Dual-vat, Computer Option (With Backup Operating-Thermostat)



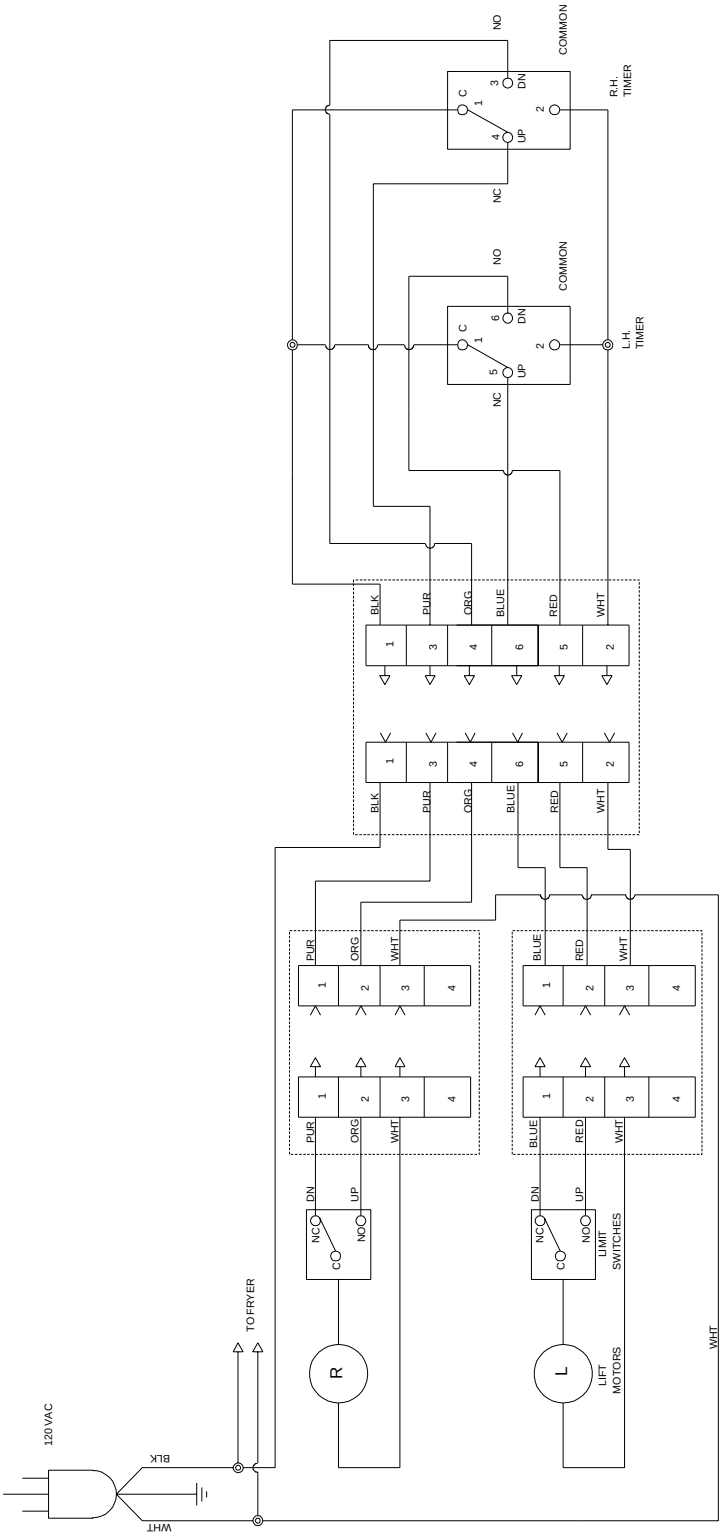
1.10.3 Decathlon Interface Board (Enlarged View)



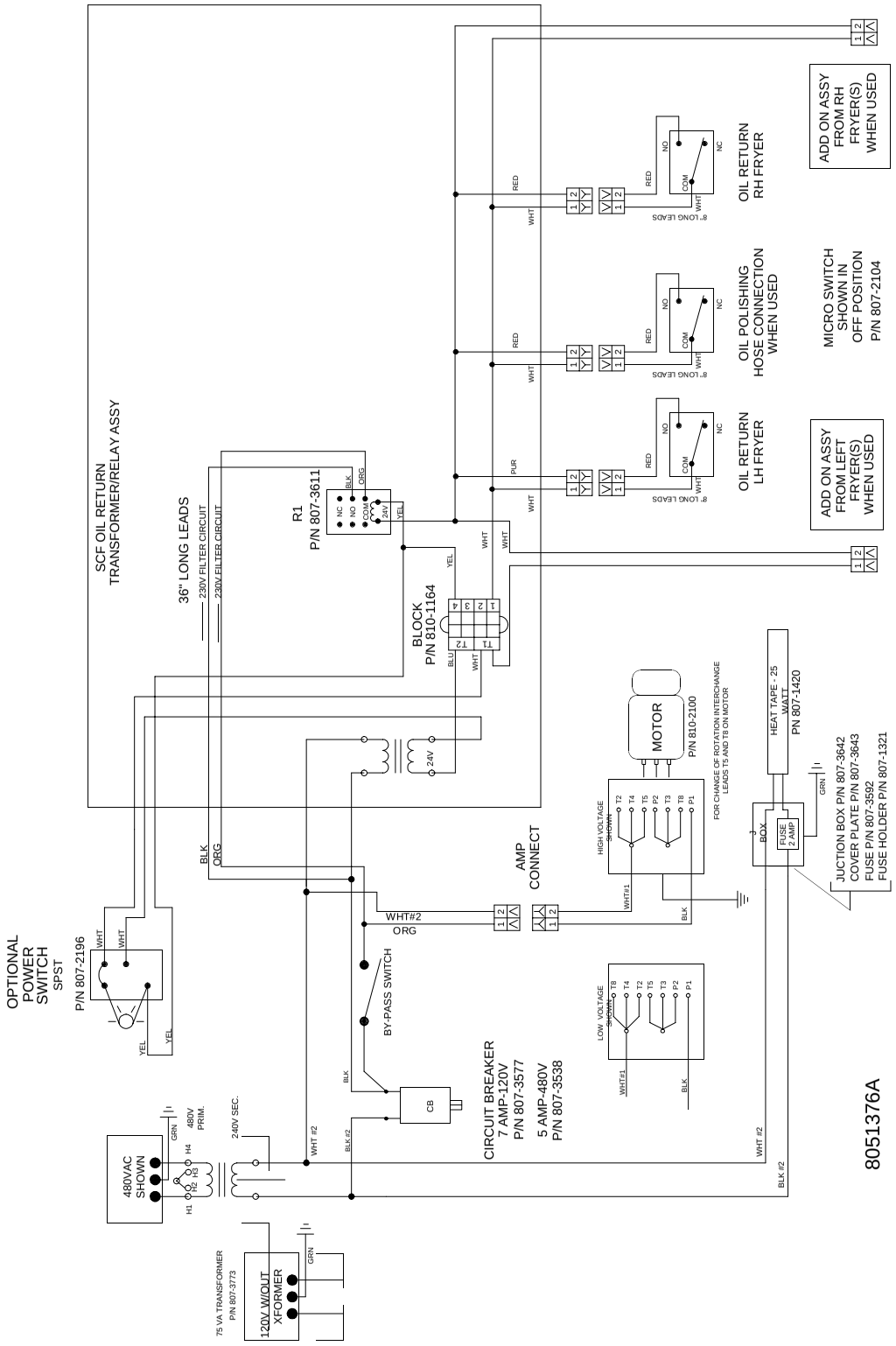
1.10.4 Single Decathlon With SUFF Filtration and Basket Lifts (PBI)



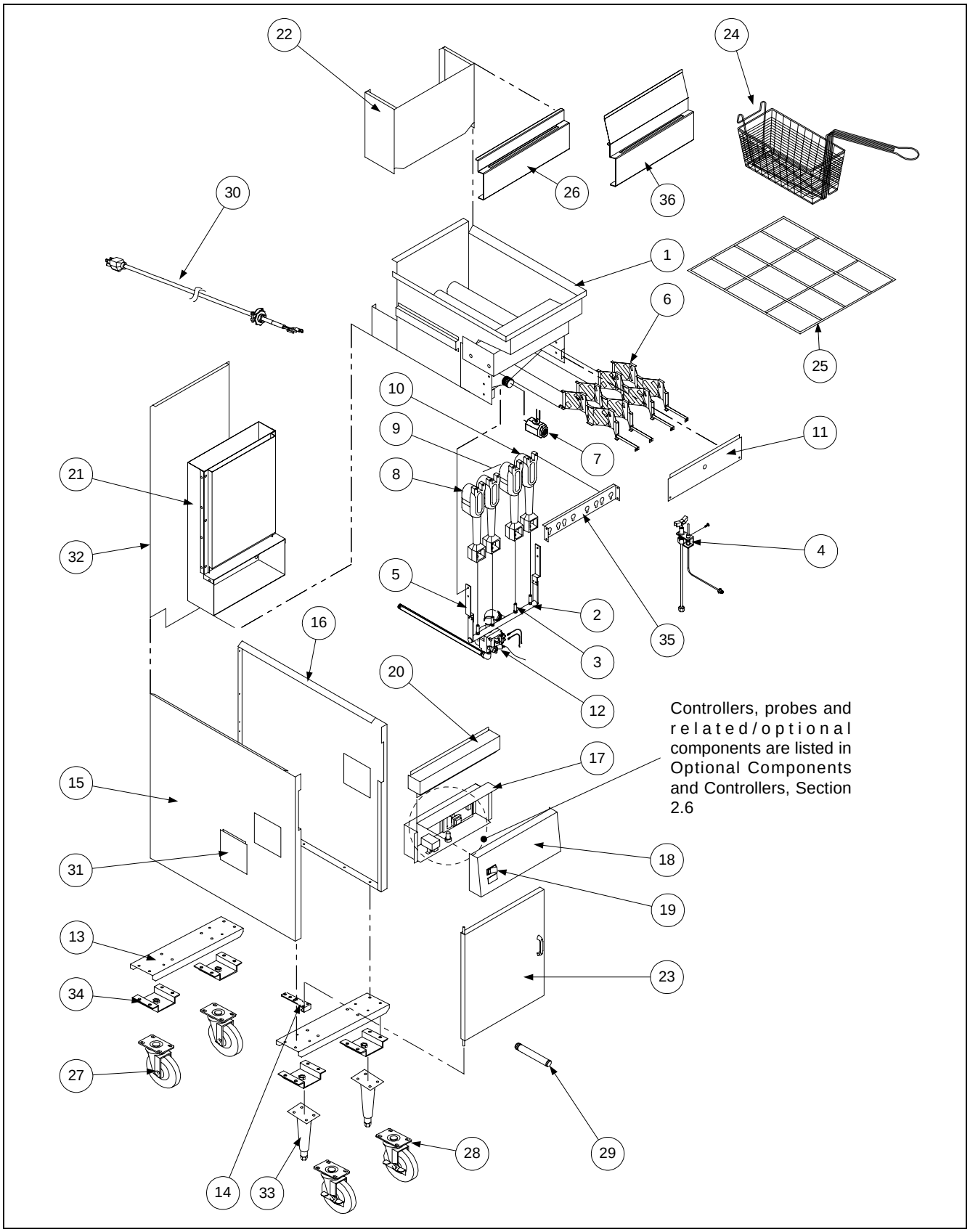
1.10.5 Decathlon Basket Lifts- Typical Wiring



1.10.6 UFF Filtration- Typical Wiring



DECATHLON SERIES GAS FRYERS
CHAPTER 2: PARTS LIST



2.1 Decathlon D-20 Primary Components

ITEM	PART #	COMPONENT
1	826-1874	Frypot- M/S- D20
*	826-1875	Frypot- S/S- D20
*	07003-4SK	Frypot- S/S, With Basket Lift- D20
2	810-2167	Manifold, Gas- D20
3	810-2050	Orifice, Natural Gas- #44 (2.18 mm)
*	810-2324	Orifice, LP Gas- #54 (1.40 mm)
*	810-2060	Orifice, G20/G25 Gas- #42 (2.40 mm **CE Only**)
*	810-2059	Orifice, G31 Gas- #53 (1.51 mm **CE Only**)
4	810-2158	Pilot Burner- Natural (G20/25) Gas
*	2149	Pilot Burner- LP (G31) Gas
*	809-0766	Nut, Keps- 10-32 SS Hex
*	809-0845	Screw, 10-32 x 3/8 Hex Slotted Head
*	810-2437	Tube, Pilot Gas Supply- ¼ x 20"
*	810-0703	Tube, Pilot Gas Supply- ¼ x 17-½ "
5	200-1615	Manifold Support Bracket
6	823-3330	Diffuser Assembly
7	►►►	**See Drain Manifold Components- Section 2-8**
8	810-2151	Burner, Left Side
9	**N/A**	Burner, Center
10	810-2150	Burner, Right Side
11	200-1331	Heat Shield
12	807-3552	Gas Valve, Natural Gas, Electronic Ignition 24 VAC
*	807-3628	Gas Valve, LP Gas, Electronic Ignition 24 VAC
*	810-2156	Gas Valve, Natural Gas 120 VAC
*	810-2323	Gas Valve, LP Gas 120 VAC
*	807-2091	Gas Valve, G20/G25 Gas 24 VAC **(CE ONLY)**
*	807-2127	Gas Valve, G31 Gas 24 VAC **(CE ONLY)**
13	200-1148	Channel, Front and Rear
14	200-1675	Bracket, Lower Hinge
15	211-3261	Side Panel, Left Side
*	201-3268	Panel, Inner- Left Side (Multi-Batteried Units)
16	212-3261	Side Panel, Right Side
*	202-3268	Panel, Inner- Right Side (Multi-Batteried Units)
17	824-1025	Wireway, Control Panel
18	07-0132	Control Panel, Blank
*	07-0132-1	Control Panel, One-Hole
*	07-0132-2	Control Panel, Two-Hole
19	►►►	**See Optional Components…- Section 2-6**
20	210-3323	Topcap, D220
21	106-1583SP	Flue Assembly
*	200-1342	Shield, Heat- Flue
*	200-1344	Front, Flue Box
*	200-1351	Rear, Flue Box
*	200-3647	Deflector, Flue
22	823-3368	Flue Cap

* Not Illustrated

2.1 Decathlon D-20 Primary Components (cont.)

ITEM	PART #	COMPONENT
23	106-2121SP	Door Assembly, D20
*	210-3266	Panel, Door- Outer
*	200-3267	Panel, Door- Inner
*	810-2105	Handle, Door- Chrome
*	809-0918	Screw, 10-24 x ½" Slotted Head (Use With 810-2105)
*	809-0191	Washer, ¼ Spring-Lock (Use With 810-2105)
*	200-1301	Pin, Door
*	810-0066	Magnetic Catch, Door
24	803-0022	Basket, Fry
25	803-0327	Grid, Frypot
26	200-3755SP	Hanger, Basket- D20- Single System
*	210-3911SP	Hanger, Basket- D250/20 System
27	810-0356	Caster, Plate Mount- 5-inch w/o Brake
*	810-2406	Caster, Single-Stud Mount- 5-inch w/o Brake
28	810-0357	Caster, Plate Mount- 5-inch with Brake
*	810-2405	Caster, Single-Stud Mount- 5-inch with Brake
*	826-1389	Screw, ¼-20 x ¾" Hex Head (For Plate-Mount Casters- Qty: 10)
29	813-0669	Drain Nipple, Extended- 1" Drain
30	106-0913SP	Cordset, 10'- Power
31	210-2804	Cover, Outlet Duct
32	200-3285	Panel, Structural Back- D20 (In Multi-Batteried Systems)
*	200-1674	Panel, Structural Back- D220
33	810-2411	Leg (Black)
34	823-3636	Leg Support Assembly
35	823-3346	Bracket, Burner Mounting
36	823-3715	Hanger, Basket- D20 Single- Chili's Units Only
* Not Illustrated		

2.2 Decathlon D-50 Primary Components

ITEM	PART #	COMPONENT
1	826-1870	Frypot- M/S- D50
*	826-1871	Frypot- S/S- D50
*	826-1872	Frypot- M/S- D50 (**With Basket Lift**)
*	826-1873	Frypot- S/S- D50 (**With Basket Lift**)
*	826-1868	Frypot- M/S- DD50 (Deep Depth- Used in Fryer-Batteries With D60)
*	826-1869	Frypot- S/S- DD50 (Deep Depth- Used in Fryer-Batteries With D60)
2	810-2169	Manifold, Gas- D50
3	14-0067-45	Orifice, Natural Gas #45 (2.08 mm, Non-CE)- **D50G**
*	810-2497	Orifice, LP Gas #55 (1.32 mm, Non-CE)- **D50G**
*	810-2048	Orifice, Natural Gas #39 (2.53 mm, Non-CE)- **D50GHP**
*	14-0067-41	Orifice, Natural Gas #41 (2.44 mm, Non-CE)- **D50GDDHP**
*	810-2059	Orifice, LP and G31 Gas #53 [(1.51 mm, **CE- All D Series**) and Non-CE- **D50GHP**, **D50GDDHP**)
*	810-2060	Orifice, G20/G25 Gas (2.40 mm **CE ONLY- All D Series**)
* Not Illustrated		

2.2 Decathlon D-50 Primary Components (cont.)

ITEM	PART #	COMPONENT
4	810-2032	Pilot Burner- Natural (G20/25) Gas
*	810-2155	Pilot Burner- LP (G31) Gas
*	809-0766	Nut, Keps- 10-32 SS Hex
*	809-0845	Screw, 10-32 x 3/8 Hex Slotted Head
*	810-2437	Tube, Pilot Gas Supply- ¼ x 20"
*	810-0703	Tube, Pilot Gas Supply- ¼ x 17-½ "
5	200-1615	Bracket, Manifold Support
6	823-3522	Diffuser Assembly
7	►►►	**See Drain Manifold Components- Section 2-8**
8	810-2151	Burner, Left Side
9	810-2149	Burner, Center
10	810-2150	Burner, Right Side
11	200-1330	Heat Shield
12	807-3552	Gas Valve, Natural Gas, Electronic Ignition 24 VAC
*	807-3628	Gas Valve, LP Gas, Electronic Ignition 24 VAC
*	810-2156	Gas Valve, Natural Gas 120 VAC
*	810-2323	Gas Valve, LP Gas 120 VAC
*	807-2091	Gas Valve, G20/G25 Gas 24 VAC **(CE ONLY)**
*	807-2127	Gas Valve, G31 Gas 24 VAC **(CE ONLY)**
13	200-1148	Channel, Front and Rear
14	200-1675	Lower Hinge Bracket
15	211-2787	Side Panel, Left Side
16	212-2787	Side Panel, Right Side
17	824-0961	Wireway, Control Panel
18	210-3716	Control Panel, Blank
*	210-2908	Control Panel, Two-Hole
*	210-3747	Control Panel, Three-Hole
*	210-3715	Control Panel, Three-Hole, Basket Lift Option
19	►►►	**See Optional Components…- Section 2-6**
20	210-1250	Top Cap- Single System
*	824-0982	Top Cap- Double System
*	824-0983	Top Cap- Triple System
*	824-0984	Top Cap- Quad System
21	106-1742SP	Flue Box Assembly
*	200-2872	Shield, Heat- Flue
*	200-1343	Front, Flue Box
*	200-1350	Rear, Flue Box
*	200-3651	Deflector, Flue
22	823-3338	Flue Cap, D50 & 15MC
23	106-1754SP	Door Assembly- D50
*	210-2869	Panel, Door- Outer
*	200-1379	Panel, Door- Inner
*	810-2105	Handle, Door- Chrome
*	806-0918	Screw, 10-24 x ½" Slotted Head (Use With 810-2105)
*	809-0191	Washer, ¼ Spring-Lock (Use With 810-2105)
*	200-1301	Pin, Door
*	810-0066	Magnetic Catch, Door
24	803-0022	Basket, Fry

* Not Illustrated

2.2 Decathlon D-50 Primary Components (cont.)

ITEM	PART #	COMPONENT
25	803-0277	Grid Assembly
26	210-1595	Hanger, Basket- Single System
*	200-3135	Hanger, Basket- Double System
27	810-0356	Caster, Plate Mount- 5-inch w/o Brake
*	810-2281	Caster, Plate Mount- 5-inch with Brake- “Tile Safe” (Cracker Barrel)
*	810-2406	Caster, Single-Stud Mount- 5-inch w/o Brake
28	810-0357	Caster, Plate Mount- 5-inch with Brake
*	810-2280	Caster, Adjustable/Swivel- (3-inch Wheel) with Brake- “Tile Safe” (Cracker Barrel)
*	810-2405	Caster, Single-Stud Mount- 5-inch with Brake
*	826-1389	Screw, ¼-20 x ¾" Hex Head (For Plate-Mount Casters- Qty: 10)
29	812-1226SP	Drain Nipple, Extended- 1-¼" Drain
30	106-0913SP	Cordset, 10' Power
31	210-1365	Cover, Outlet Duct
32	200-1674	Back Panel, Rear
33	810-2411	Leg (Black)
34	823-3248	Leg Support Assembly
35	200-1329	Burner Mounting Bracket
36	823-3857	Hanger, Basket- Single- With Splash
*	823-3672	Hanger, Basket- Single- With Splash & Upper/Lower Hanger
*	823-3710	Hanger, Basket- Double System- (UFF) With Splash

* Not Illustrated

2.3 Decathlon D-60 Primary Components

ITEM	PART #	COMPONENT
1	826-1876	Frypot- M/S- 1-½" Drain- D60
*	60052-4	Frypot- S/S- 1-½" Drain- D60
*	18064-3SK	Frypot-M/S- 1-¼" Drain- D60
*	18064-4SK	Frypot- S/S- 1-¼" Drain- D60
*	826-1819	Frypot- M/S- 1-¼" Drain- Non-Filtration- D60
*	826-1802	Frypot- S/S- 1-¼" Drain- Non-Filtration- D60
*	826-1806	Frypot- S/S- With Basket Lift- D60
*	826-1826	Frypot- S/S- Cascade Filter- D60
*	18128-2SK	Frypot- S/S- Cascade Filter With Basket Lift- D60
2	810-2072	Gas Manifold (Weld Assembly)
3	810-2048	Orifice, Natural Gas #39 (2.53 mm, Non-CE)
*	810-2059	Orifice, LP Gas #53 (1.51 mm, **CE** and Non-CE)
*	810-2060	Orifice, Nat. Gas G20/G25 (**CE ONLY**)
4	810-2032	Pilot Burner- Natural (G20/25) Gas (Primary and Trailing)
*	810-2155	Pilot Burner- LP (G31) Gas (Primary and Trailing)
*	809-0766	Nut, Keps- 10-32 SS Hex (Primary and Trailing)
*	809-0845	Screw, 10-32 x 3/8 Hex Slotted Head (Primary and Trailing)
*	810-2437	Tube, Pilot Gas Supply- ¼ x 20"
*	810-0703	Tube, Pilot Gas Supply- ¼ x 17-½"
*	810-2138	Valve, Trailing Pilot- Adjustable (**Trailing Pilot Only**)

* Not Illustrated

2.3 Decathlon D-60 Primary Components (cont.)

ITEM	PART #	COMPONENT
5	200-1615	Manifold Support Bracket
6	823-3181	Diffuser Assembly
7	►►►	**See Drain Manifold Components- Section 2-8**
8	810-2151	Burner, Left Side
9	810-2149	Burner, Center
10	810-2150	Burner, Right Side
11	200-2746	Heat Shield
12	807-3552	Gas Valve, Natural Gas, Electronic Ignition, 24 VAC
*	807-3628	Gas Valve, LP Gas, Electronic Ignition, 24 VAC
*	810-2156	Gas Valve, Natural Gas, 120 VAC
*	810-2323	Gas Valve, LP Gas, 120 VAC
*	807-2091	Gas Valve, G20/G25 Gas, 24 VAC **(CE ONLY)**
*	807-2127	Gas Valve, G31 Gas, 24 VAC **(CE ONLY)**
13	200-2493	Channel, Front & Rear
14	200-1675	Lower Hinge Bracket
15	211-2532	Side Panel, Left Side
16	212-2532	Side Panel, Right Side
17	824-0951	Wireway, Control Panel
18	►►►	**See Control Panel Options- D60 Series- Section 2-5**
19	►►►	**See Optional Components…- Section 2-6**
20	824-0987	Top Cap,
*	210-2822	Top Cap, Two-Vat
21	106-0997SP	Flue Box Assembly
*	200-1339	Front, Flue Box
*	200-1773	Back, Flue Box
*	200-1325	Shield, Flue Box
*	200-3649	Deflector, Flue
22	106-1703SP	Flue Cap, Single System
*	823-3516	Flue Cap, Double System
23	106-0759SP	Door Assembly, With Liner
*	210-1424	Panel, Door- Outer
*	200-1185	Panel, Door- Inner
*	810-2105	Handle, Door- Chrome
*	806-0918	Screw, 10-24 x ½" Slotted Head (Use With 810-2105)
*	809-0191	Washer, ¼ Spring-Lock (Use With 810-2105)
*	200-1301	Pin, Door
*	810-0066	Magnetic Catch, Door
24	803-0301	Fry Basket, 6 x 8-¾ x 16-¾"
25	803-0149	Grid Assembly, Mesh-Type
*	810-2235	Grid Assembly, Rack-Type
26	210-2779	Basket Hanger, Single System
*	210-3142	Basket Hanger, Double System
27	810-0356	Caster, Plate Mount- 5-inch w/o Brake
*	810-2406	Caster, Single-Stud Mount- 5-inch w/o Brake
28	810-0357	Caster, Plate Mount- 5-inch with Brake
*	810-2405	Caster, Single-Stud Mount- 5-inch with Brake
*	826-1389	Screw, ¼-20 x ¾" Hex Head (For Plate-Mount Casters- Qty: 10)

* Not Illustrated

2.3 Decathlon D-60 Primary Components (cont.)

ITEM	PART #	COMPONENT
29	812-1226SP	Drain Nipple, Extended
30	106-0913SP	Cordset, 10'- Power
31	210-1365	Cover, Outlet Duct
32	200-1213	Upper Structural Back
*	200-1327	Lower Structural Back
33	810-2411	Leg (Black)
34	823-3248	Leg Support Assembly
35	200-2065	Bracket, Burner Mounting

2.4 Decathlon D-80 Primary Components

ITEM	PART #	COMPONENT
1	80018-3SK	Frypot- M/S- 1-¼" Drain- D80 (After 10/99)
*	80018-4SK	Frypot- S/S- 1-¼" Drain- D80 (After 10/99)
*	20004-3SK	Frypot- M/S- 1-¼" Drain- D80 (Before 10/99)
*	20004-4SK	Frypot- S/S- 1-¼" Drain- D80 (Before 10/99)
*	823-3395	Frypot- M/S- 1-½" Drain- D80
*	823-3396	Frypot- S/S- 1-½" Drain- D80
2	810-2072	Gas Manifold (Weld Assembly)
3	810-2049	Orifice, Natural Gas- #43 (2.26 mm, Non-CE) **D80G**
*	810-2324	Orifice, LP Gas- #54 (1.40 mm, Non-CE) **D80G**
*	810-2161	Orifice, Natural Gas- #38 (2.58 mm, Non-CE) **D80GHP**
*	810-2131	Orifice, LP Gas- #52 (1.61 mm, Non-CE) **D80GHP**
*	810-2060	Orifice, G20/G25 Gas (**CE ONLY**)
*	810-2059	Orifice, G31 (**CE ONLY**)
4	810-2032	Pilot Burner- Natural (G20/25) Gas (Primary and Trailing)
*	810-2155	Pilot Burner- LP (G31) Gas (Primary and Trailing)
*	809-0766	Nut, Keps- 10-32 SS Hex (Primary and Trailing)
*	809-0845	Screw, 10-32 x 3/8 Hex Slotted Head (Primary and Trailing)
*	810-2437	Tube, Pilot Gas Supply- ¼ x 20"
*	810-0703	Tube, Pilot Gas Supply- ¼ x 17-½ "
*	810-2138	Valve, Trailing Pilot- Adjustable (**Trailing Pilot Only**)
5	200-1615	Manifold Support Bracket
6	823-3513	Diffuser Assembly
7	►►►	**See Drain Manifold Components- Section 2-8**
8	810-2151	Burner, Left Side
9	810-2149	Burner, Center
10	810-2150	Burner, Right Side
11	200-2707	Heat Shield
12	807-3552	Gas Valve, Natural Gas, Electronic Ignition, 24 VAC
*	807-3628	Gas Valve, LP Gas, Electronic Ignition, 24 VAC
*	810-2156	Gas Valve, Natural Gas, 120 VAC
*	810-2323	Gas Valve, LP Gas, 120 VAC
*	807-2091	Gas Valve, G20/25 Gas, 24 VAC **(CE ONLY)**
*	807-2127	Gas Valve, G(31) Gas, 24 VAC **(CE ONLY)**

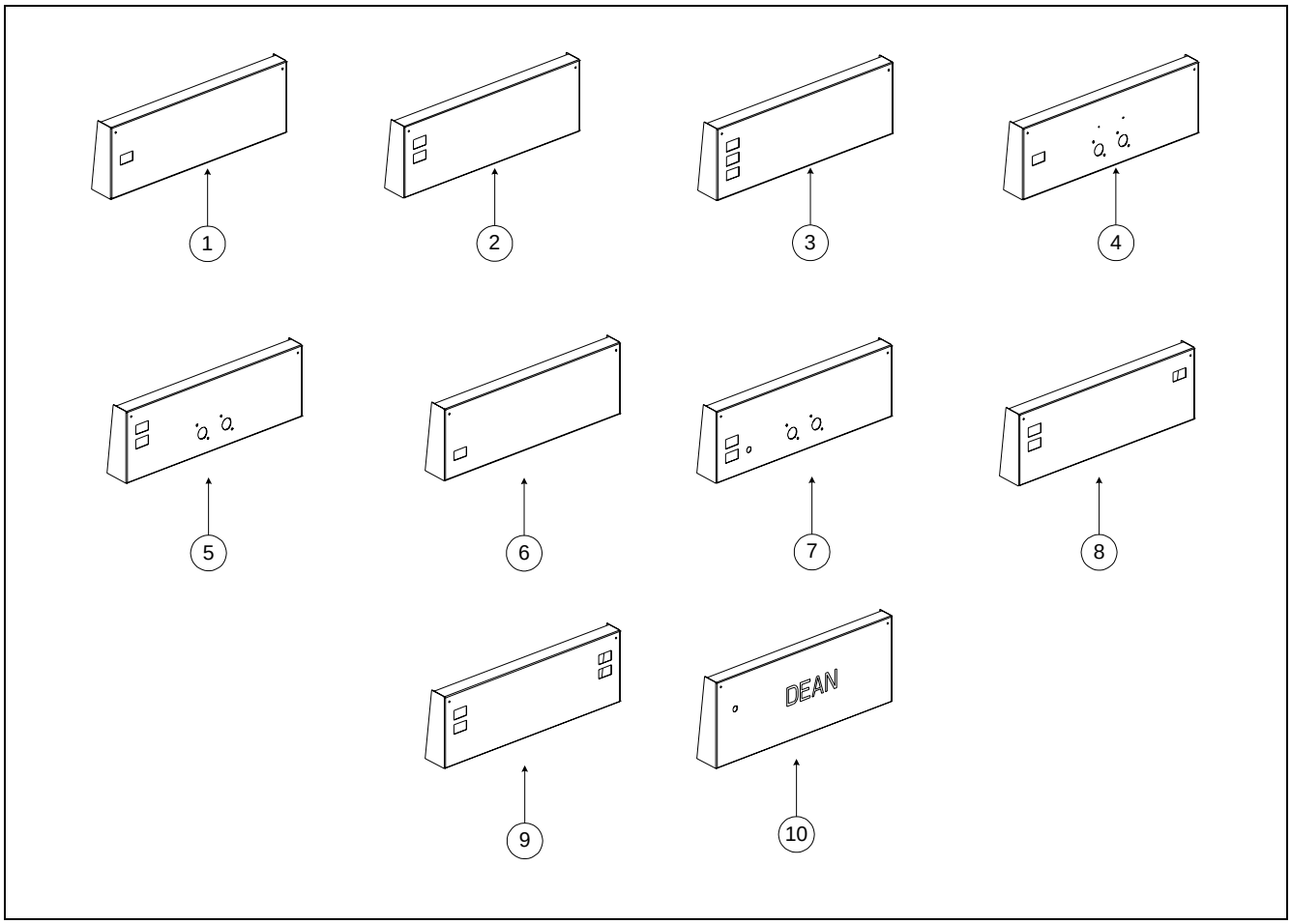
* Not Illustrated

2.4 Decathlon D-80 Primary Components (cont.)

ITEM	PART #	COMPONENT
13	200-2686	Channel, Front and Rear
14	200-1675	Lower Hinge Bracket
15	211-2532	Side Panel, Left Side
16	212-2532	Side Panel, Right Side
17	824-0954	Wireway, Control Panel
18	210-2778	Control Panel, 1-Hole
*	210-2777	Control Panel, 2-Hole
19	►►►	**See Optional Components…- Section 2-6**
20	80-0006-1	Top Cap
21	106-1442SP	Flue Box Assembly
*	200-1347	Front, Flue Box
*	200-1349	Back, Flue Box
*	200-1316	Shield, Flue Box
*	200-3645	Deflector, Flue
22	823-3512	Flue Cap
23	106-1698SP	Door Assembly
*	210-1151	Panel, Door- Outer
*	200-2688	Panel, Door- Inner
*	810-2105	Handle, Door- Chrome
*	806-0918	Screw, 10-24 x ½" Slotted Head (Use With 810-2105)
*	809-0191	Washer, ¼ Spring-Lock (Use With 810-2105)
*	200-1301	Pin, Door
*	810-0066	Magnetic Catch, Door
24	803-0301	Fry Basket, 6 x 8-¾ x 16-¾"
25	810-2122	Grid Assembly
26	200-3120	Hanger, Basket- Single System
*	200-3119	Hanger, Basket- Double System
27	810-0356	Caster, Plate Mount- 5-inch w/o Brake
*	810-2406	Caster, Single-Stud Mount- 5-inch w/o Brake
28	810-0357	Caster, Plate Mount- 5-inch with Brake
*	810-2405	Caster, Single-Stud Mount- 5-inch with Brake
*	826-1389	Screw, ¼-20 x ¾" Hex Head (For Plate-Mount Casters- Qty: 10)
29	812-1226SP	Drain Nipple, Extended
30	106-0913SP	Cordset, Power
31	210-1365	Cover, Outlet Duct
32	200-2683	Back, Cabinet
33	810-2411	Leg (Black)
34	823-3248	Leg Support Assembly
35	200-2734	Burner Mounting Bracket
36	823-3649	Hanger, Basket- With Splash
*	823-3349	Hanger, Basket- Double System- With Splash

* Not Illustrated

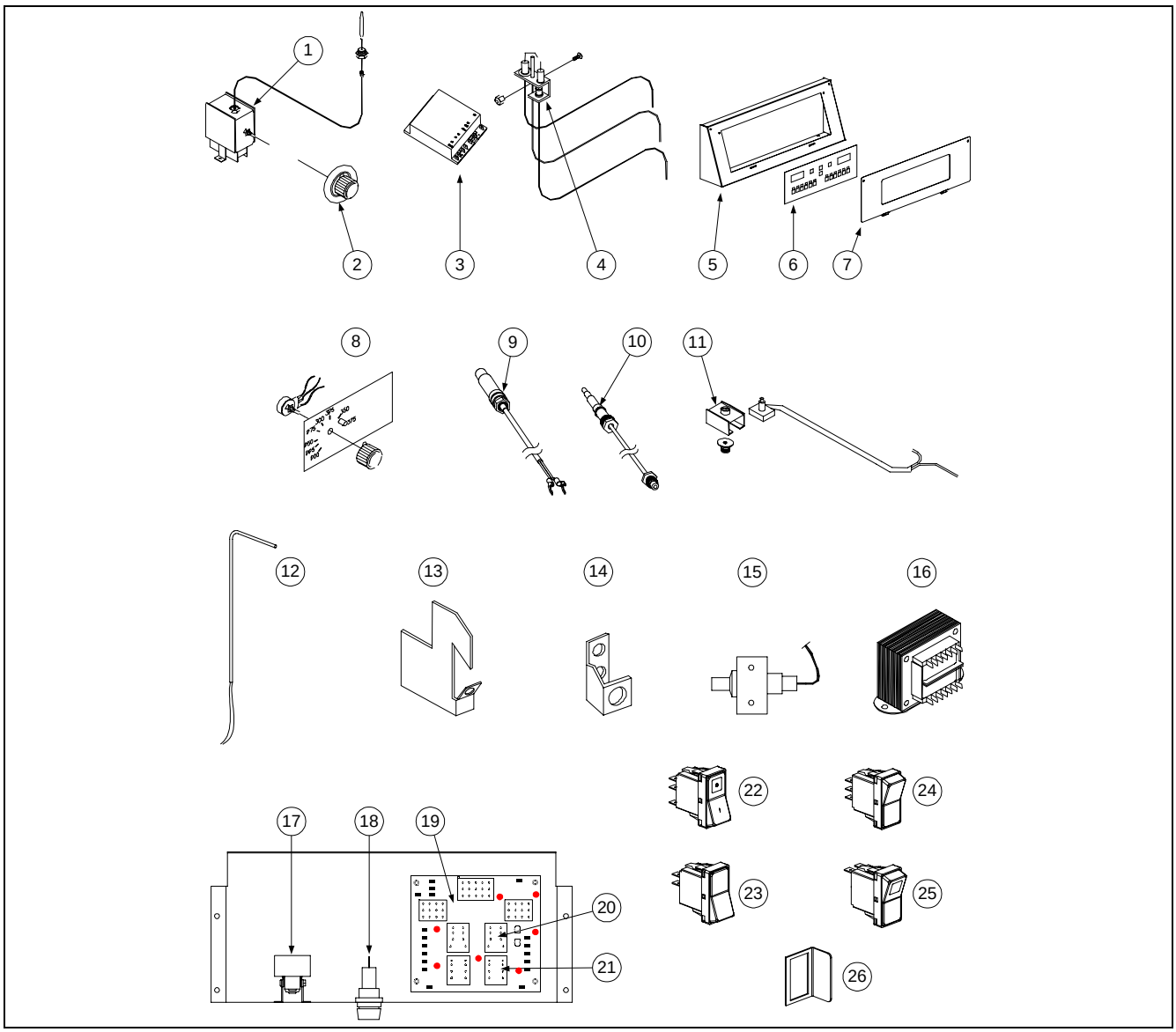
2.5 Control Panel Options, D60 Series



ITEM	PART #	COMPONENT
1	210-1167	Panel, Control- One-Hole (Left-Middle Location)
2	210-1168	Panel, Control- Two-Hole (Two on Left Side)
3	210-1169	Panel, Control- Three-Hole (Three on Left Side)
4	210-1170	Panel, Control- One-Hole (Manual Timer Option)
5	200-1171	Panel, Control- Two-Hole (Manual Timer Option)
6	210-1172	Panel, Control- One-Hole (Lower-Left Location)
7	210-1173	Panel, Control- Two-Hole (Manual Timer Option Plus Fuse Holder)
8	210-1174	Panel, Control- Three-Hole (Two Upper Left, One Upper Right)
9	210-1175	Panel, Control- Four-Hole
10	210-3021	Panel, Control- Indicator Light, Single Light

2.6 Optional Components and Controllers (CE and Domestic)*

* Components are applicable to all Decathlon fryers covered in this manual unless otherwise noted.



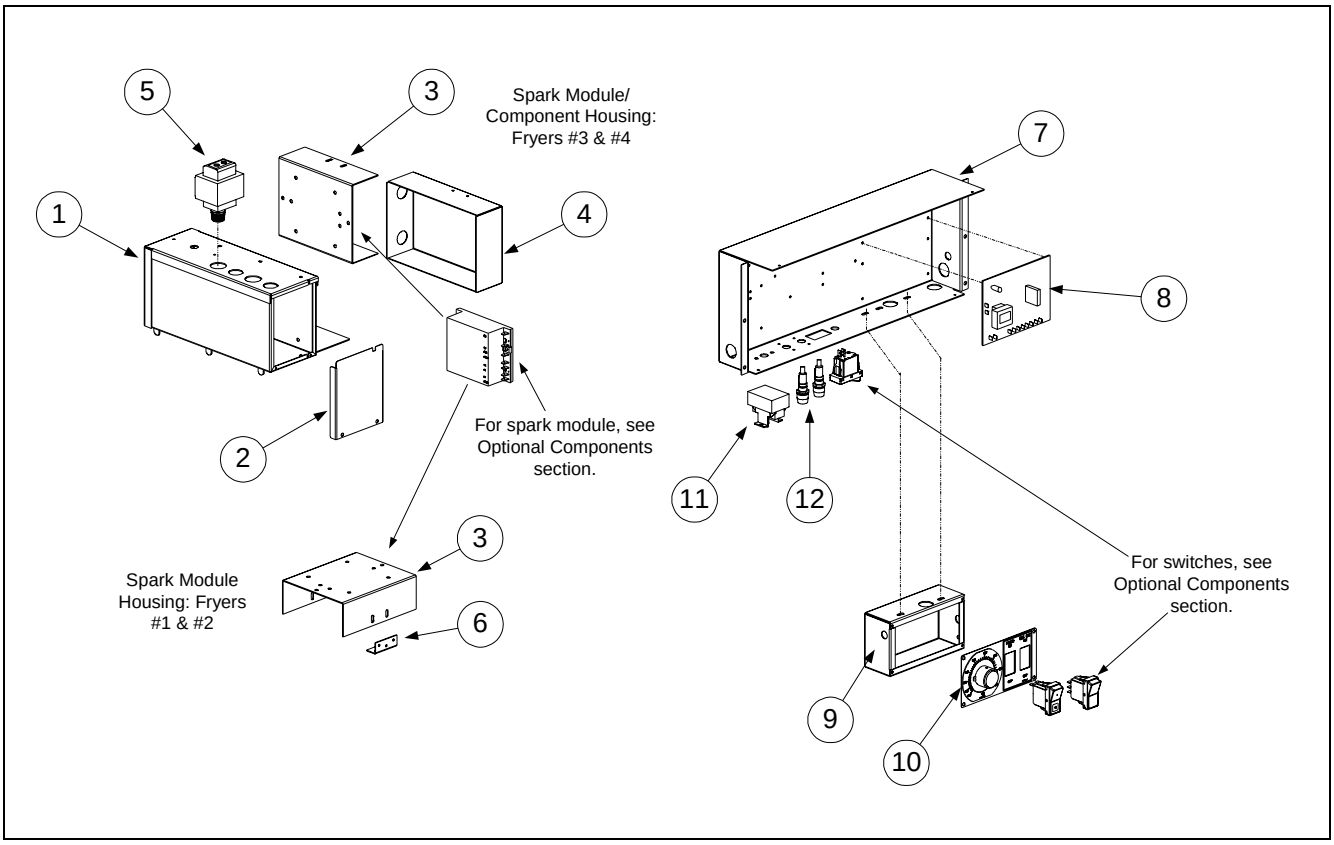
ITEM	PART #	COMPONENT
1	807-3515	Thermostat, Sunne (See Item #17 for Mounting Hardware)
2	810-2035	Knob, Thermostat
3	807-3563	Spark Module (Domestic and CE)
4	807-1311	Pilot Assembly- Natural Gas- Electronic Ignition
*	807-1553	Pilot Assembly- LP Gas- Electronic Ignition
*	807-1315	Ignition Cable
*	810-2437	Tube, Pilot Gas Supply - One Piece- ¼ x 20"
*	807-1310	Flame Sensor
* Not Illustrated		

2.6 Optional Components and Controllers (CE and Domestic-cont.)

ITEM	PART #	COMPONENT
5	210-3562	Panel, Control- Computer, **D-50**
*	210-1256	Panel, Control- Computer, **D-60**
*	210-1520	Panel, Control- Computer, **D-80**
6	806-4441	Computer, Compu-Fry III.5
7	823-3433	Bezel Assembly, Control Panel
8	106-0802SP	Face Plate/Potentiometer, 120 VAC- Electronic Thermostat
*	820-0135	Face Plate, Electronic Thermostat
*	106-0801SP	Potentiometer, Electronic Thermostat
*	816-0534	Knob, Control- Electronic Thermostat
9	810-2033	Thermopile
10	810-1152	Thermocouple (**CE ONLY**)
*	807-3550	Thermocouple
11	810-1153	ECO Connector (Honeywell Valves Only- **CE ONLY**)
*	810-2398	ECO Connector (Robertshaw Valves Only- **CE ONLY**)
12	106-1757SP	Probe Assembly, Temperature- Electronic Thermostat- D20 & D50
*	106-1424SP	Probe Assembly, Temperature- Electronic Thermostat- D60 & D80
*	106-1541SP	Probe Assembly (RTD), Temperature, Dean Computer
*	810-2164	Spring, Space- Electronic Thermostat Probe
*	210-1386	Clamp, Electronic Thermostat Probe
13	200-2042	Bracket, Pilot Thermocouple
14	810-2401	Bracket, Thermopile
15	810-1001	Piezo Ignitor (Trigger)
*	200-1868	Piezo Bracket
*	807-3540	Electrode, Piezo
16	807-3551	Transformer, Honeywell 120/24 VAC
*	807-0855	Transformer, 120/12 VAC
*	807-3571	Transformer, 120/24 VAC
*	807-1999	Transformer, Dual CE **(CE ONLY)**
17	807-3560	High-Limit Thermostat- Manual Reset 410° F
*	807-3680	High-Limit Thermostat- Manual Reset 450° F
*	807-3559	High-Limit Thermostat- Manual Reset 435° F
*	810-2046	Spring, Spacer- High Limit Capillary Bulb
*	810-2047	Spring, Spacer- Thermostat Capillary Bulb
*	210-1433	Clamp, Thermostat/High Limit Capillary Bulb
18	807-1321	Fuse Holder, Buss
*	2747	Fuse Holder, Slot-head—Safety **(CE ONLY)**
*	807-3592	Fuse 2A Slow-Blow (230V Systems)
*	807-3750	Fuse 5A (120V Systems)
19	807-3651	Interface Board, Dean Computer Only
20	807-0834	Relay, 12VDC 15A 1PDT (Basketlift)
21	807-0833	Relay, 12VDC 5A 1PDT (Latching)
22	807-3574	Switch, Power- Green Lens
23	807-3580	Switch, Rocker- Manual Filter Power
24	807-3579	Switch, Boil-Out- 6-Terminal
25	807-3576	Switch, Fryer Reset (Momentary)
*	810-0333	Insert, Blank- Switch
26	210-2786	Guard, Switch (Optional- For Items 22-25)

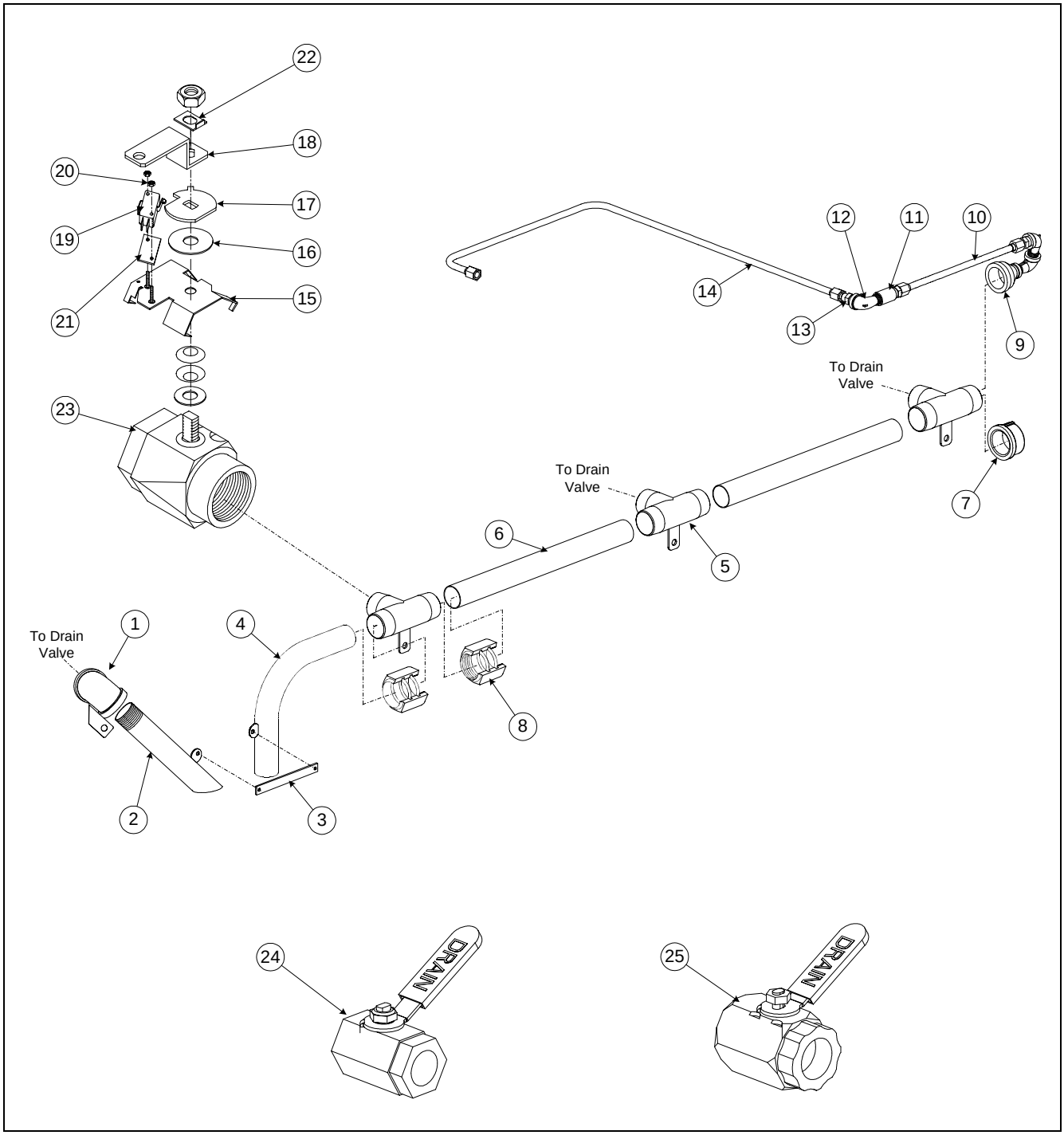
* Not Illustrated

2.7 Transformers & Component Boxes- Multi-Batteried Decathlons



ITEM	PART #	COMPONENT
1	823-3242	Control Box (Fryers 3 & 4)
2	210-1364	Plate, Face (For Item #1)
3	200-1322	Bracket, Spark Module
4	200-1326	Cover, Spark Module (Fryers 3 & 4)
5	807-3551	Transformer
6	200-2307	Bracket, Attachment- Spark Module Bracket (Fryers 1 & 2)
7	824-0961	Wireway, Control Panel- D50
*	824-0951	Wireway, Control Panel- D60
*	824-1002	Wireway, Control Panel- D80
8	807-3851	Interface Board, Electronic Thermostat- 24 VAC
*	807-3566	Interface Board, Electronic Thermostat- 120 VAC
*	807-3722	Interface Board, Electronic Thermostat- 208/230 VAC
9	200-3212	Housing, Electronic Thermostat- Two Cut-Outs
10	210-3214	Face Plate, Electronic Thermostat- Power/Boil-Out
*	807-3536	Potentiometer, Electronic Thermostat
*	816-0534	Knob, Electronic Thermostat Potentiometer
11	807-3680	High-Limit Thermostat- Manual Reset 450° F (Non-CE Only)
*	807-3559	High-Limit Thermostat- Manual Reset 435° F
*	807-3560	High-Limit Thermostat- Manual Reset 410° F (CE Only)
* Not Illustrated		

2.8 Oil Drain Manifold, Drain Flush and Drain Valve Components

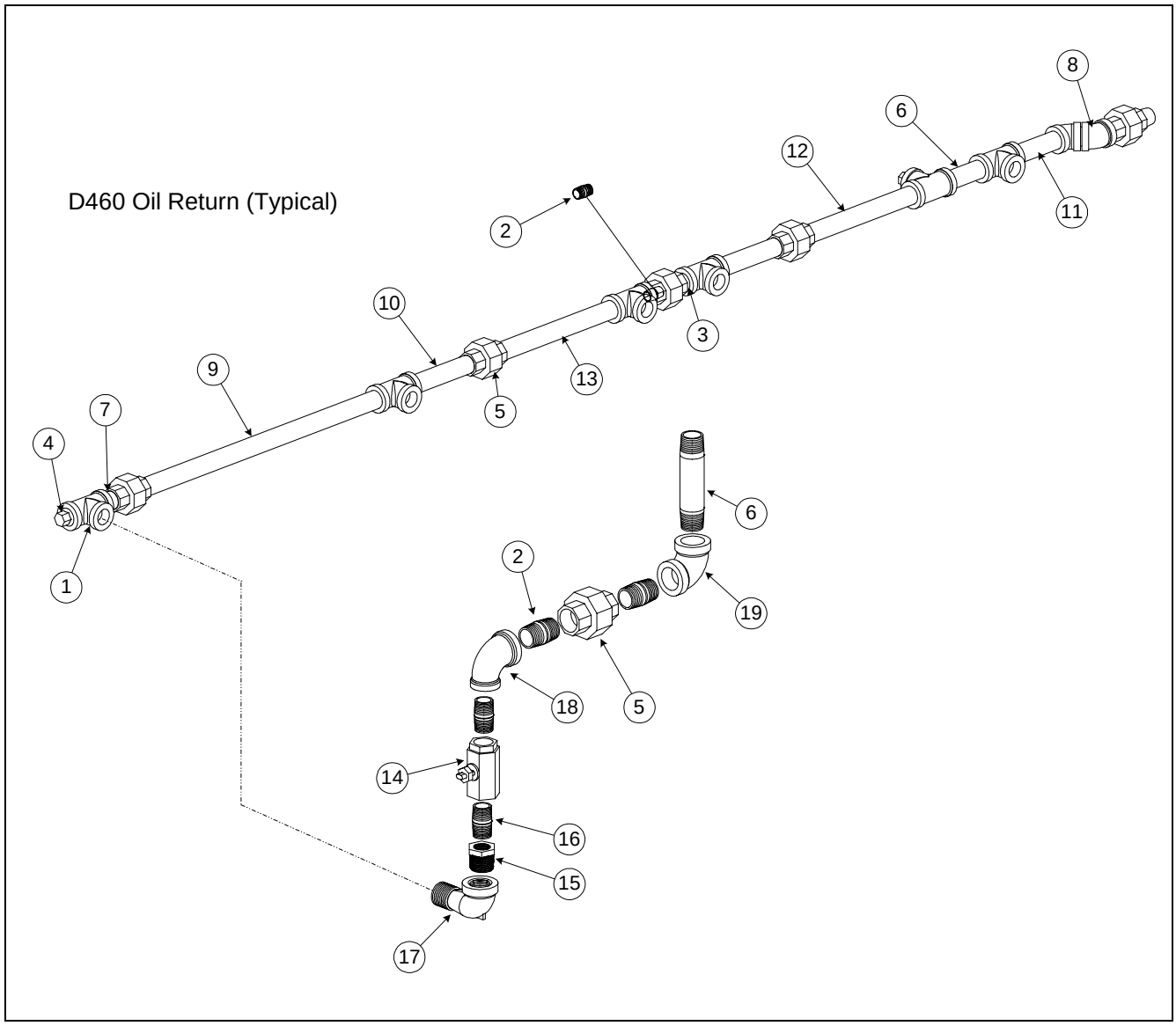


2.8 Oil Drain Manifold, Drain Flush and Drain Valve Components (cont.)

ITEM	PART #	COMPONENT
1	823-3221	Elbow, with Bracket (Drain Valve Handle)
2	823-3558	Drain Pipe, Left Side
3	210-2311	Clamp, Center- Drain Pipe
4	823-3441	Drain Pipe, Right Side
5	813-0749	Tee, 1-½" NPT With Handle
6	200-1840	Drain Manifold Tube
7	813-0659	Pipe Cap, 1-½"
8	809-0884	Nut, Slip Joint- 1-½"
*	816-0544	O-ring (Slip-Joint Nut)
9	813-0686	Bell Reducer, 1-½ x ½" NPT
10	810-1057	Flex Line, 5/8 x 13"
11	813-0051	Coupling, ½" NPT
12	813-0165	Elbow, Street- ½ x ½" 90°
13	810-1668	Adapter, 5/8" O.D. x ½"- Male (Use With 810-1057 and 810-1069)
*	810-1669	Adapter, 5/8" O.D. x ½"- Female (Use With 810-1057 and 810-1069)
14	810-1069	Flex Line, 5/8" x 29-½ "
		Drain Valve Components
15	106-1401	Bracket, Microswitch (Optional On Some Units)
16	200-1617	Washer, Drain Valve (Use Without Microswitch)
17	210-2029	Bracket, Activator- Microswitch
18	200-1940	Handle (Actuator) , Drain Valve
*	823-3440	Handle, Push/Pull- Drain (With Cap)
*	809-0885	Washer, 3/8 x 1 x .083"
*	809-0843	Cotter Pin
*	816-0547	Cap, Vinyl-Red
19	807-2104	Microswitch (Optional On Some Units)
20	809-0842	Nut, Nylock- #4-40 (Microswitch To Bracket)
21	816-0220	Insulation, Microswitch
22	200-1257	Retainer, Nut
23	810-2127	Drain Valve, 1-½" Full Port (With Washers & Nut)
24	810-2052	Drain Valve, 1-¼" (1" Standard Port)
*	810-2128	Drain Valve, 1" (D20 Only)
*	200-2371	Handle, Valve Lever (**For 810-2128 Only**)
25	810-2126	Drain Valve, 1-¼" Full-Port

* Not Illustrated

2.9 Oil Return Manifold Components

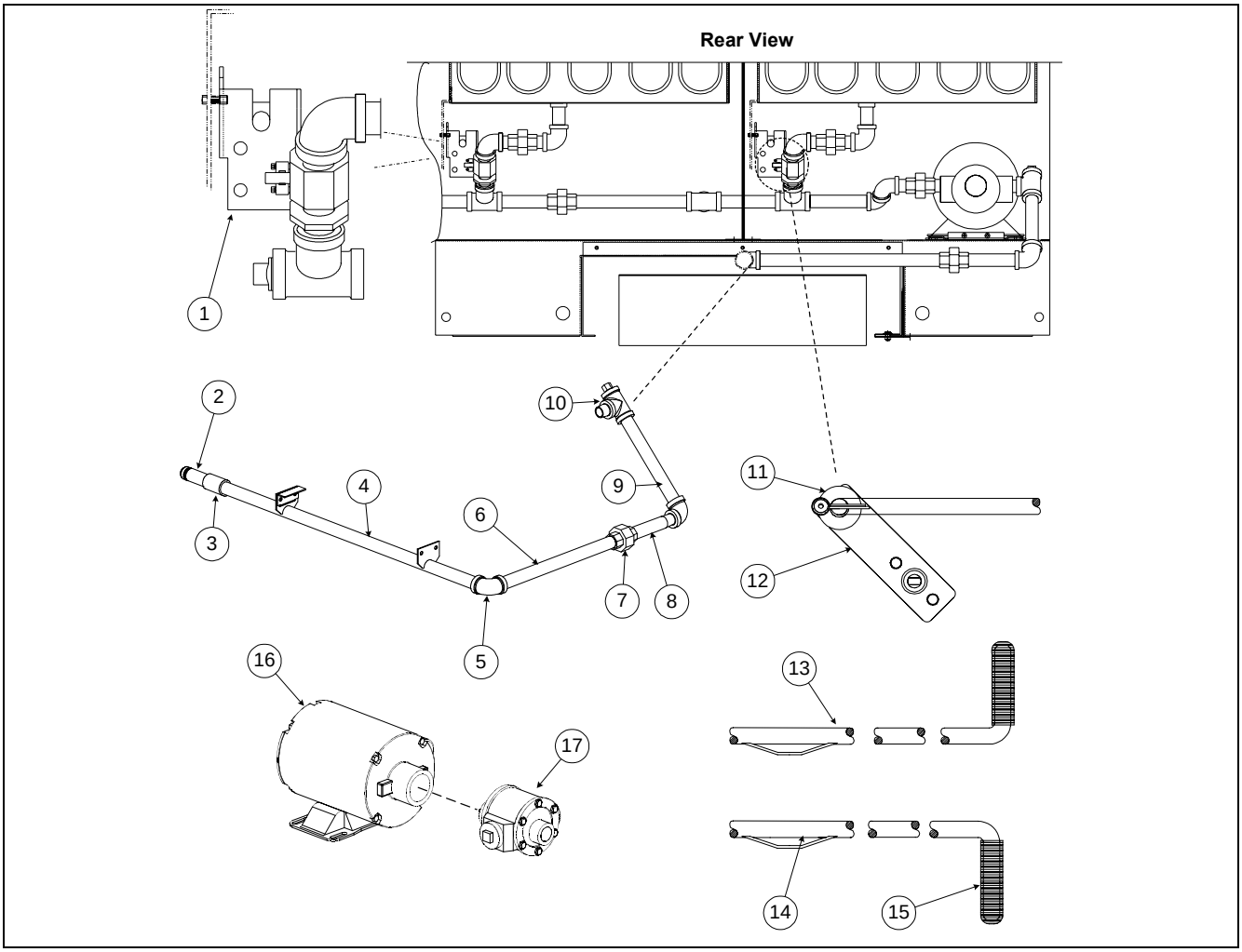


ITEM	PART #	COMPONENT
1	813-0003	Tee, ½ x ½ x ½" NPT BM
2	813-0022	Nipple, ½" NPT x Close BM
3	813-0087	Nipple, ½ NPT x 1-½" BM
4	813-0156	Plug, ½" NPT Hex Head BM
5	813-0173	Union, ½" NPT BM
6	813-0247	Nipple, ½ NPT x 3-½" BM
7	813-0298	Nipple, ½ NPT x 2" BM
8	813-0345	Elbow, ½" NPT 45° BM
9	813-0368	Nipple, ½ NPT x 16" BM
10	813-0646	Nipple, ½ NPT x 5" BM

2.9 Oil Return Manifold Components (cont.)

ITEM	PART #	COMPONENT
11	813-0654	Nipple, ½ x 4" NPT BM
12	813-0672	Nipple, ½ x 8" NPT BM
13	813-0673	Nipple, ½ x 8-½" NPT BM
14	810-2125	Oil Return Valve, 3/8"
*	200-1143	Retainer, Oil Return Valve Nut
*	809-0877	Nut, Oil Return Valve
15	813-0006	Bushing, Hex- ½ x 3/8" NPT BM
16	813-0625	Nipple, 3/8" x Close NPT BM
17	813-0165	Elbow, Street- ½ x ½" NPT 90° BM
18	813-0634	Elbow, ½ x 3/8" NPT 90° BM
19	813-0062	Elbow, ½" NPT 90° BM
* Not Illustrated		

2.10 Oil Return and Oil Flush Components



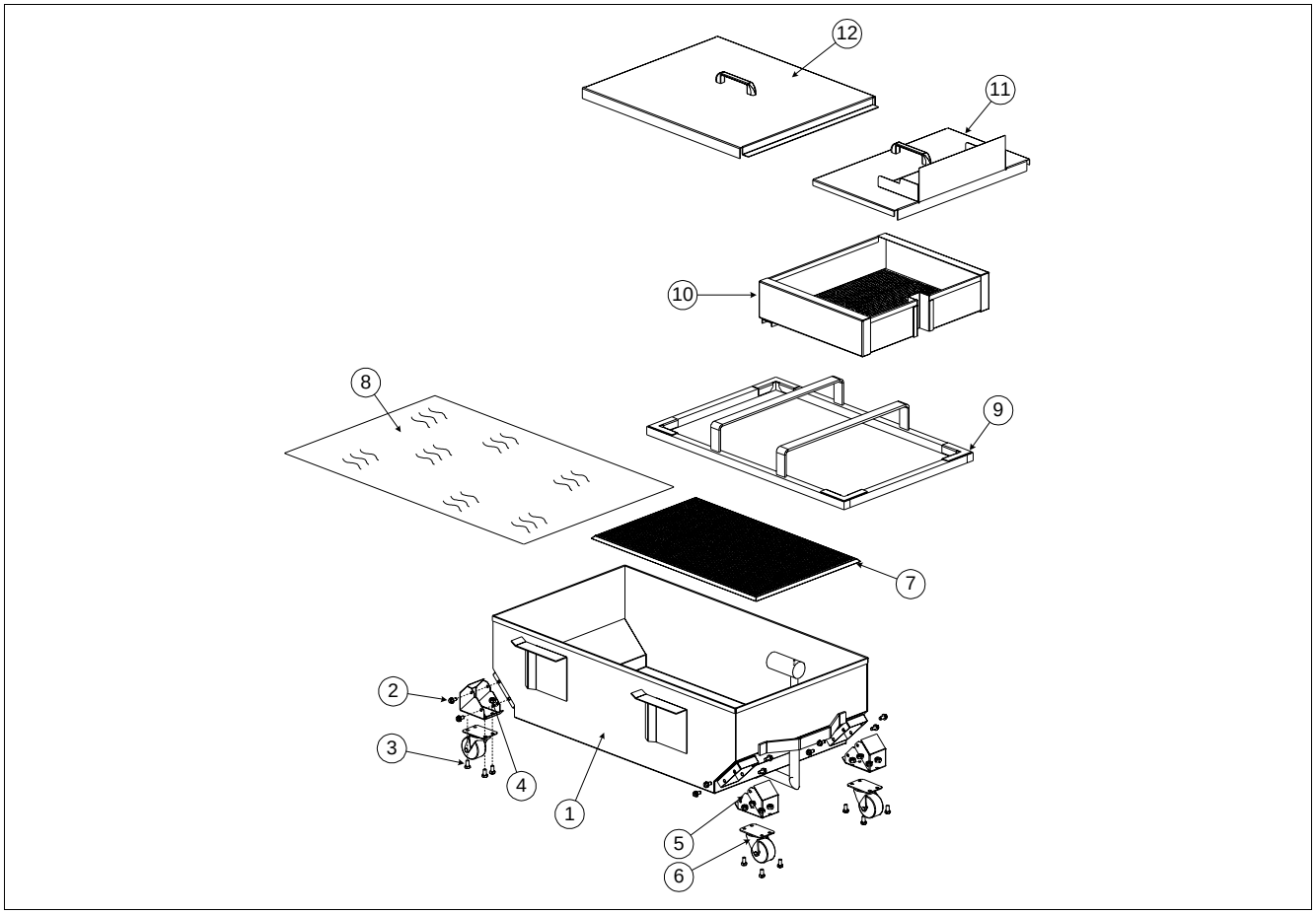
2.10 Oil Return and Oil Flush Components (cont.)

ITEM	PART #	COMPONENT
1		**Microswitch Bracket Assembly, Oil Return**
*	201-1233	Bracket, Oil Return Microswitch- Left
*	202-1233	Bracket, Oil Return Microswitch- Right
*	810-2144	Spacer, Aluminum, 4-40- ¼ x 3/8"
*	807-2104	Microswitch, Oil Return
*	809-0846	Screw, 4-40 x 1" Slotted Head
*	809-0842	Nut, Nylock- 4-40
*	200-1341	Bracket, Microswitch Rod
*	809-0360	Screw, #8 x 3/8 Hex Washer Slotted Head
*	809-0803	Bolt, ¼-20 x ¾" Hex Head Grade 5
*	809-0823	Nut, Nylock, ¼-20
*	809-0070	Nut, ¼-20 Hex SS
2	810-0697	Disconnect, Male- Suction Tube
3	813-0608	Coupling, Full- ½" NPT BM
4	823-3188	Suction Manifold Assembly
5	813-0062	Elbow, 90° BM
6	813-0515	Nipple, ½ NPT x 12" BM
7	813-0173	Union, ½" NPT BM
8	813-0251	Nipple, ½ NPT x 4-½" BM
9	813-0672	Nipple, ½ NPT x 8" BM
10		**Oil Suction Start Fitting**
*	813-0022	Nipple- ½" NPT x Close
*	813-0156	Plug, ½" NPT Hex Head
*	813-0003	Tee, ½" NPT BM
11	809-0885	Washer, 3/8 x 1 x .083"
*	809-0843	Pin, Cotter- Plated
12	823-3344	Handle (Actuator), Oil Return Valve
13	823-3187	Handle, Oil Return- Left Fryer-UFF System
14	823-3198	Handle, Oil Return- Right Fryer-UFF System, 3rd & 4th Fryer
*	823-3481	Handle, Oil Flush Valve
15	816-0548	Cap, Oil Return Handle- Yellow
*	816-0549	Cap, Oil Flush Handle- Blue
16	810-2100	Motor, Pump- 120-230V
17	810-2098	Pump, 8 GPM
*	810-2252	Pump, 5 GPM

* Not Illustrated

2.11 Under Fryer Filter (UFF) Components

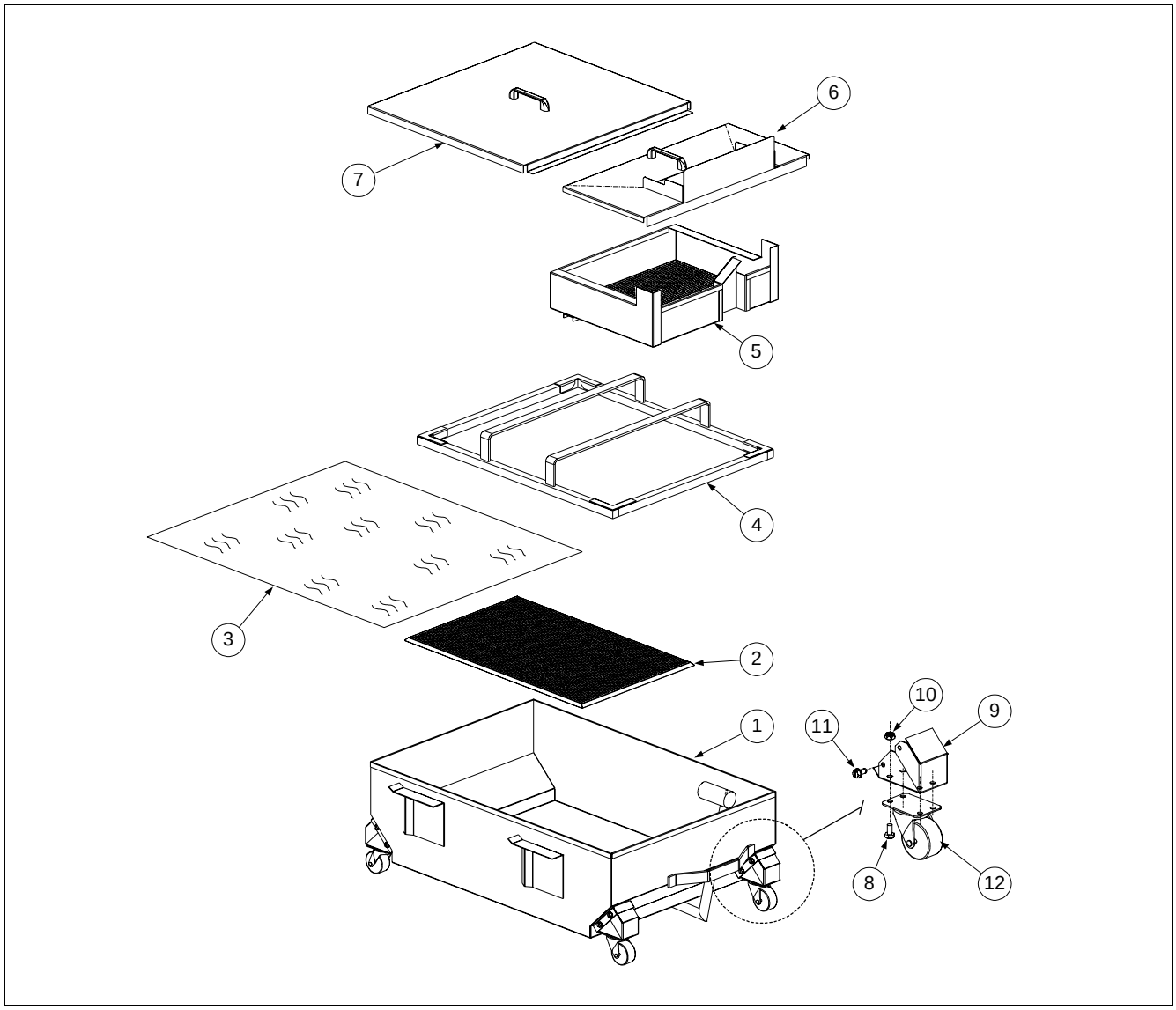
2.11.1 D50 and D60 Series Fryers



ITEM	PART #	COMPONENT
1	823-3576	Filter Pan- UFF 50
*	823-3176	Filter Pan- UFF 60
2	809-0805	Screw, ¼-20 x ½"
3	809-0822	Bolt, ¼-20 x ½" Steel
4	809-0820	Nut, Oval Locking- ¼-20
5	210-2291	Insert, Caster
6	810-2141	Caster, 2"-Swivel
7	823-3574	Support Grid (Bottom Pan Screen)- UFF 50
*	823-3365	Support Grid (Bottom Pan Screen)- UFF 60
8	803-0289	Filter Paper, 22 x 34"- UFF 50/60 (100 Sheets)
9	823-3573	Hold-down Ring, Weighted- UFF 50
*	823-3361	Hold-down Ring, Weighted- UFF 60
10	823-3175	Crumb Basket, UFF 50/60
11	106-0752SP	Lid Assembly, Front- UFF 50/60
12	106-1755SP	Lid Assembly, Rear- UFF 50
*	106-0753SP	Lid Assembly, Rear- UFF 60

* Not Illustrated

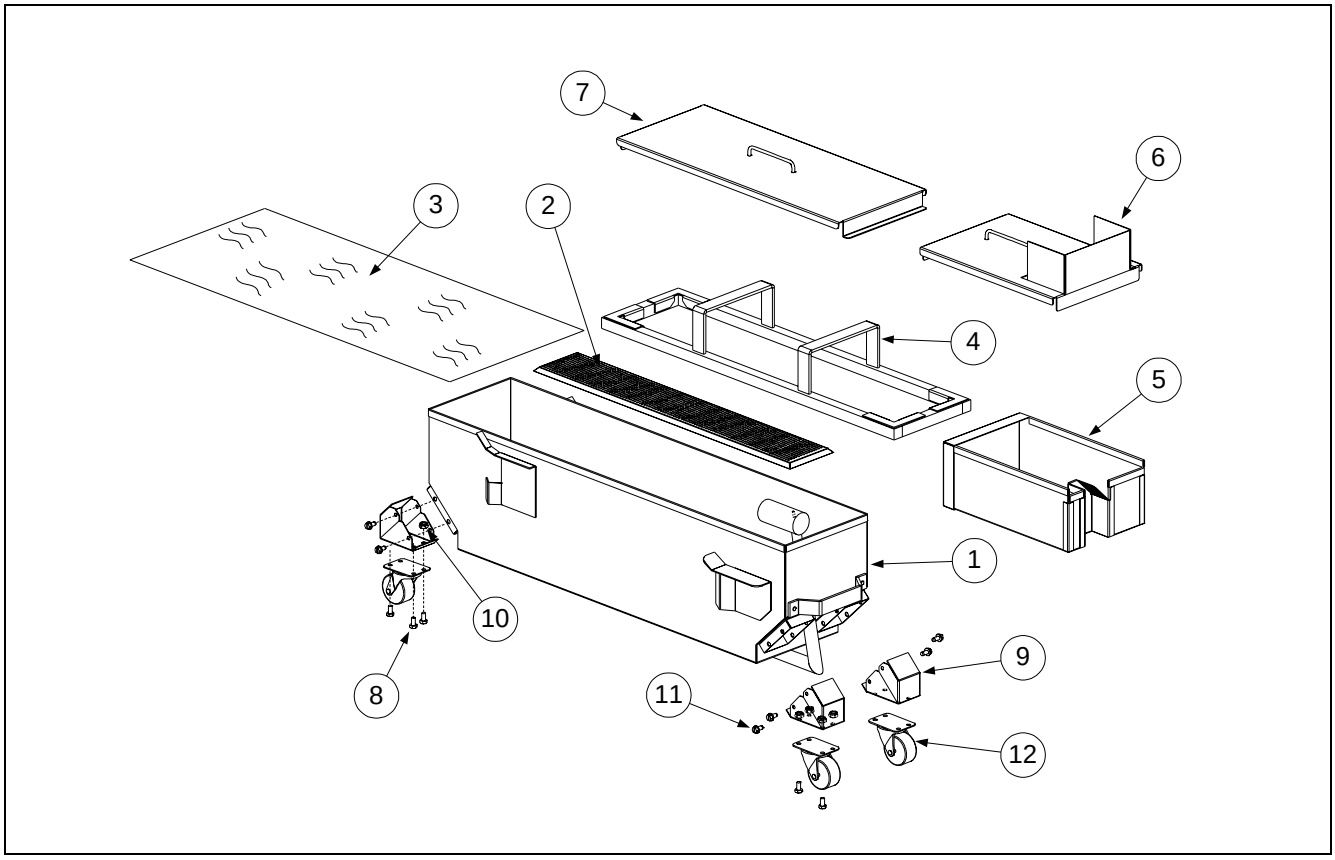
2.11.2 D80 Series Fryers



ITEM	PART #	COMPONENT
1	106-1584SP	Filter Pan, UFF 80
2	823-3365	Support Grid (Bottom Pan Screen)
3	803-0303	Filter Paper, 26 x 34" (100 Sheets)
4	823-3439	Hold-Down Ring, Weighted
5	823-3443	Crumb Basket
6	106-1587SP	Filter Pan Cover, Front
7	106-1588SP	Filter Pan Cover, Back
8	809-0822	Bolt, ¼-20 x ½" Steel
9	210-2291	Insert, Caster
10	809-0820	Nut, Oval Locking- ¼-20
11	809-0805	Screw, ¼-20 x ½"
12	810-2141	Caster, 2"

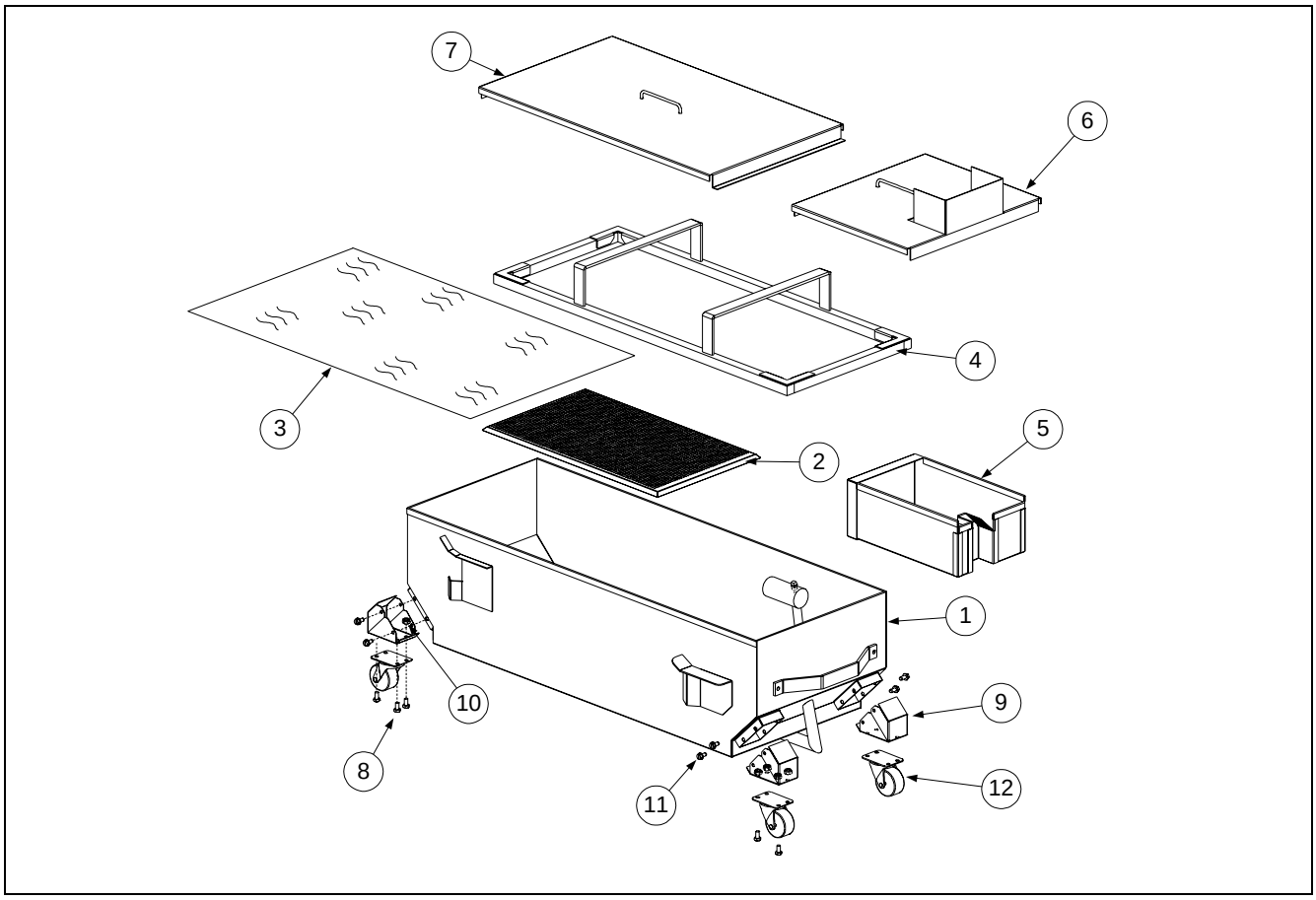
2.12 Single Under Fryer Filter (SUFF) Components

2.12.1 D50 Series Fryers



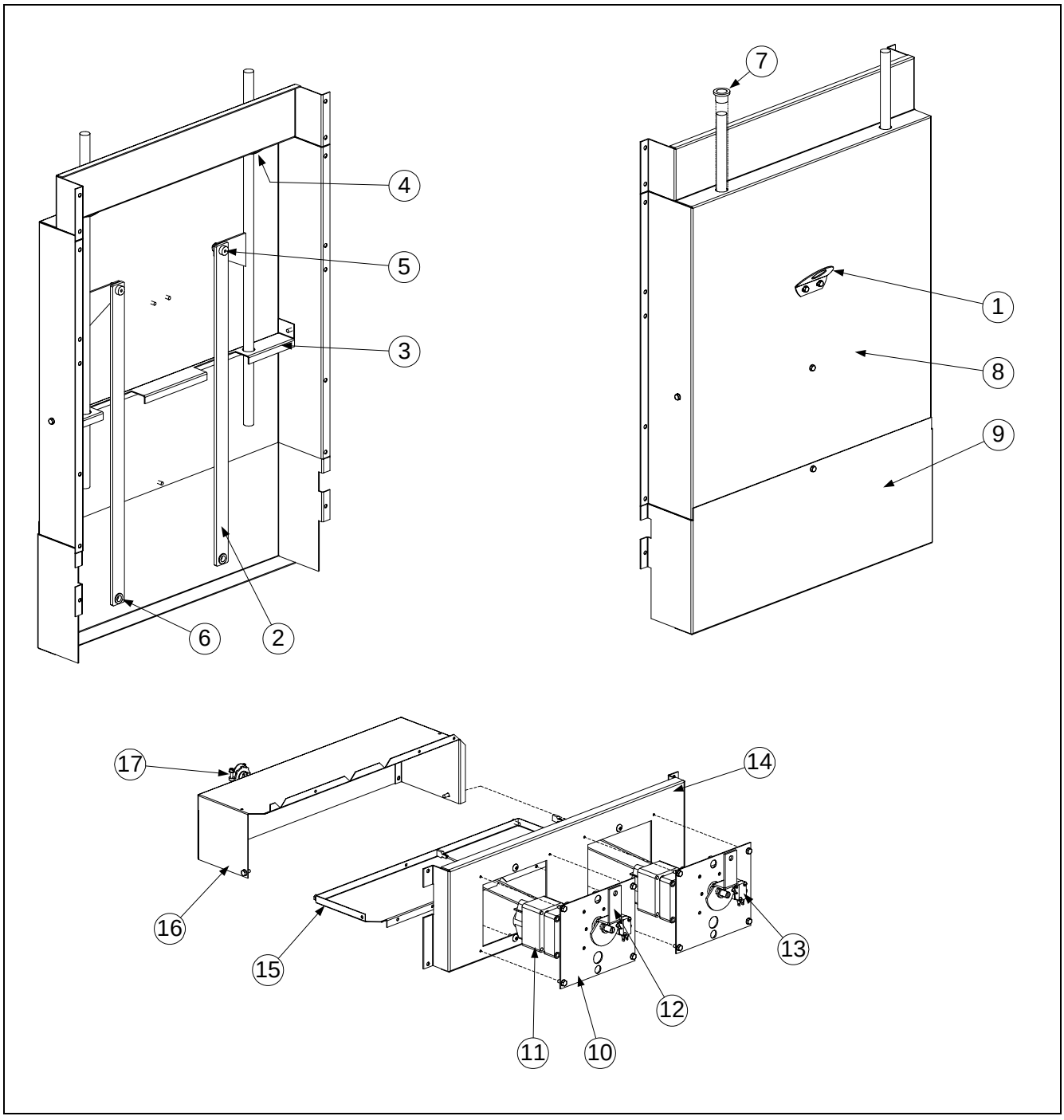
ITEM	PART #	COMPONENT
1	823-3796	Filter Pan, SUFF 50
*	813-0684	Plug, Hex Socket, 3/8" NPT
*	813-0679	Plug, 1/8" SS Square Head (Female Disconnect)
2	823-3790	Support Grid (Bottom Pan Screen)
3	803-0317	Paper, Filter- 8-1/4 x 25-3/4"
4	823-3795	Hold-Down Ring, Weighted
5	823-3736	Crumb Basket
6	823-3797	Filter Pan Cover, Front
7	823-3798	Filter Pan Cover, Back
8	809-0822	Bolt, ¼-20 x ½" Steel
9	210-2291	Insert, Caster
10	809-0820	Nut, Oval Locking- ¼-20
11	809-0805	Screw, ¼-20 x ½"
12	810-2141	Caster, 2"
* Not Illustrated		

2.12.2 D60 and D80 Series Fryers



ITEM	PART #	COMPONENT
1	823-3774	Filter Pan, SUFF 60
*	823-3821	Filter Pan, SUFF 80
*	813-0684	Plug, Hex Socket, 3/8" NPT
*	813-0679	Plug, 1/8" SS Square Head (Female Disconnect)
2	823-3768	Support Grid (Bottom Pan Screen) SUFF 60/80
3	803-0289	Paper, Filter- 22 x 34" - SUFF 60/80
4	823-3770	Hold-down Ring, Weighted- SUFF 60
*	823-3849	Hold-down Ring, Weighted- SUFF 80
5	823-3736	Crumb Basket- SUFF 60/80
6	823-3766	Filter Pan Cover, Front- SUFF 60
*	823-3739	Filter Pan Cover, Front- SUFF 80
7	823-3767	Filter Pan Cover, Back- SUFF 60
*	823-3741	Filter Pan Cover, Back- SUFF 80
8	809-0822	Bolt, ¼-20 x ½" Steel
9	210-2291	Insert, Caster
10	809-0820	Nut, Oval Locking- ¼-20
11	809-0805	Screw, ¼-20 x ½"
12	810-2141	Caster, Swivel- 2"
* Not Illustrated		

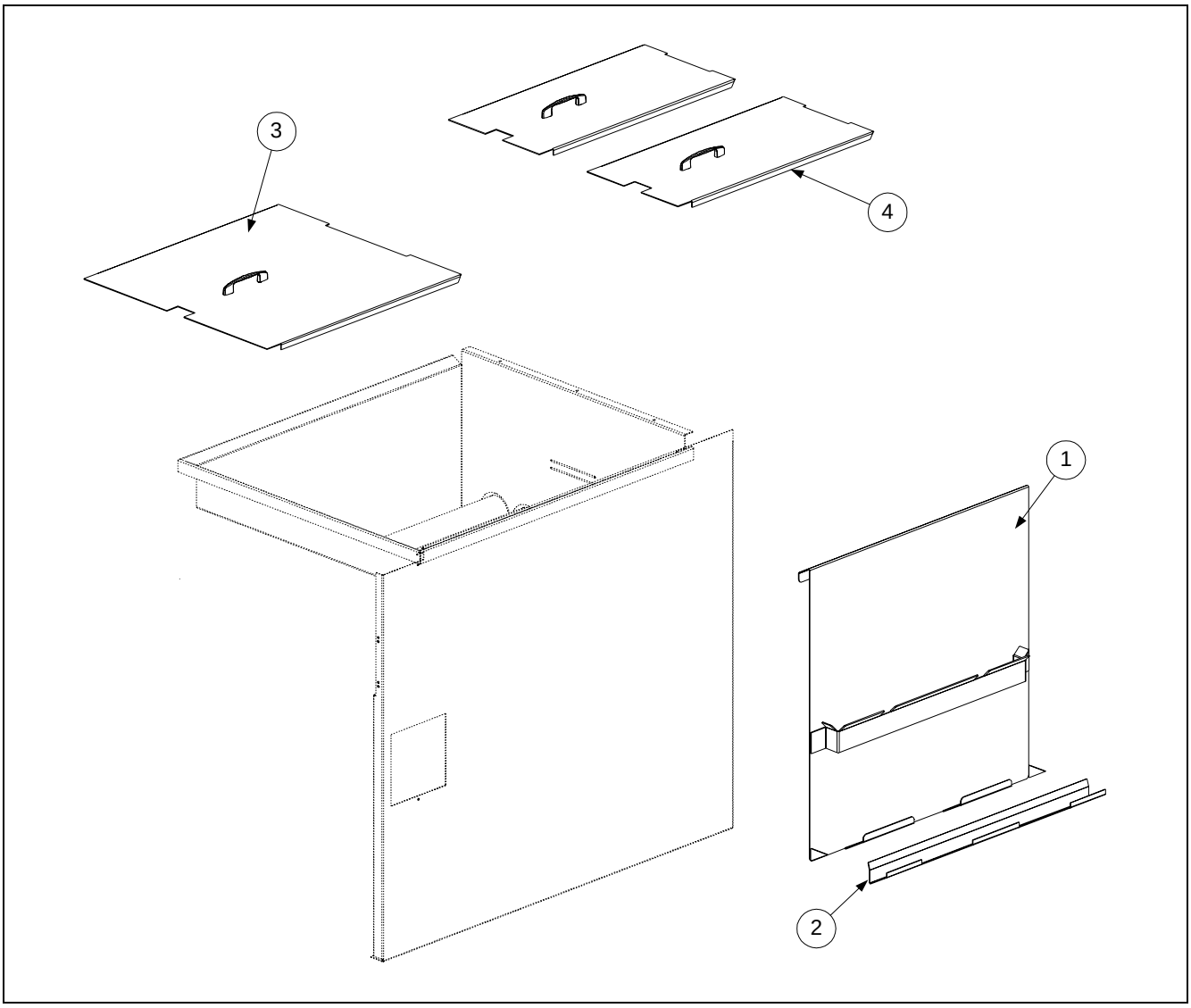
2.13 Basket Lift Components (D50, D60 and D80 Series)



2.13 Basket Lift Components (D50, D60 and D80 Series- cont.)

ITEM	PART #	COMPONENT
1	200-1376	Bracket, Restraining- All
2	200-2069	Member, Lift Control Arm- All
3	200-3094	Channel, Support Autolift- D80
*	200-2735	Channel, Support Autolift- D60
*	200-3072	Channel, Support Autolift- D50
4	809-0879	Receiver, ¾ Tinnerman Stud- All
5	809-0907	Screw, Shoulder- 3/8 x ¼"- All
*	809-0863	Nut, 5/16-18 Hex
6	810-2140	Bushing (Bronze), Oiltite- 3/8 x ½"- All
7	813-0035	Bushing (Bronze), Oiltite- .640 I.D.- All
8	824-0996	Back, Structural B.L.- D80
*	824-0958	Back, Structural B.L.- D60
*	824-0990	Back, Structural B.L.- D50
9	824-0997	Cover, Basket Lift Motor- D80
*	824-0959	Cover, Basket Lift Motor- D60
*	824-0991	Cover, Basket Lift Motor- D50
10	200-1693	Plate, Motor Mounting- All
11	807-0107	Motor, Gear- Basket Lift- All
12	823-3626	Switch, Limit Cam- All
13	807-2104	Microswitch- All
*	810-2144	Spacer, Microswitch
*	809-0846	Screw, Microswitch- 4-40 x 1"- All
*	809-0842	Nut, Nylock (Microswitch)- 4-40- All
14	200-3150	Housing, Front- Motor Housing- D80
*	200-2736	Housing, Front- Motor Housing- D60
*	200-3087	Housing, Front- Motor Housing- D50
15	200-3114	Housing, Bottom- Motor Housing- D80
*	200-2739	Housing, Bottom- Motor Housing- D60
*	200-3079	Housing, Bottom- Motor Housing- D50
16	200-3116	Housing, Back- Motor Housing- D80
*	200-2740	Housing, Back- Motor Housing- D60
*	200-3091	Housing, Back- Motor Housing- D50
17	807-0140	Connector, 3/8"
* Not Illustrated		

2.14 Trough, Holster and Cover Components- D60 & D80 Series



ITEM	PART #	COMPONENT
1	106-2668SP	Holster Assembly, Vat Cover
2	823-3384	Trough, Holster Assembly
3	106-1447SP	Cover, Vat- Full-Basket
4	106-2585SP	Cover, Vat- Twin-Basket
*	810-2030	Handle, Vat Cover (Full and Twin)
*	809-0107	Screw, 8-32 x 3/8 Round Slotted Head
* Not Illustrated		

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